

JENSEN TOOLS



T.M.


FOR ELECTRONIC ASSEMBLY AND PRECISION MECHANICS



JTK-17D Field Engineer Tool Kit. See page 56.

Catalog 674

JENSEN TOOLS and ALLOYS
4117 North 44th Street • Phoenix, Arizona 85018 • (602) 959-2210

A BLISS & LAUGHLIN industry 

Our Team is Standing By....

Jean, Order Control Supervisor



Gayle, Graphic Artist



Frances, Order Department



Helen, Order Department



Sherman, Kit Assembly Supervisor



Auston, Marketing



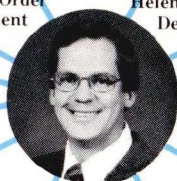
Nancy, Keypunch



Joyce, Accounting



Sherman Jensen, Operations Manager



Joe Bergeon, General Manager



Allan, Stock Control Supervisor



Dana, Shipping



Marilyn, Marketing

to Satisfy Your Tool Needs!

Dear Friends:

Much has happened to Jensen Tools and Alloys since publication of our last catalog. We were acquired by Bliss & Laughlin Industries of Oak Brook, Illinois, and I became General Manager of the firm. Sheldon Gates, founder and former president, now heads our marketing department. Sherman Jensen, as Operations Manager, continues to give personal attention to your orders and inquiries.

By expanding our product line and increasing inventories, we have strengthened our capability to provide fast service, quality products, and personal attention to guarantee our customers satisfaction. Pictured above are key members of our team who will provide you with the products and services you require.

Upon examining this new 112 page catalog, I'm confident you will find in it tools that will make your work easier and more professional.

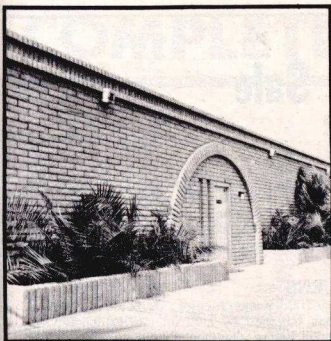
May we serve you?

Best regards,

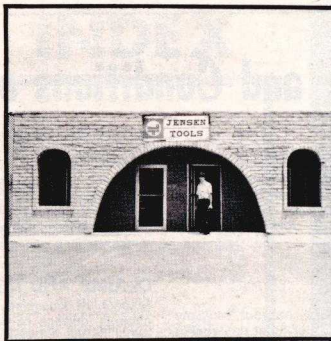
JENSEN TOOLS AND ALLOYS
a BLISS & LAUGHLIN industry

Joseph S. Bergeon

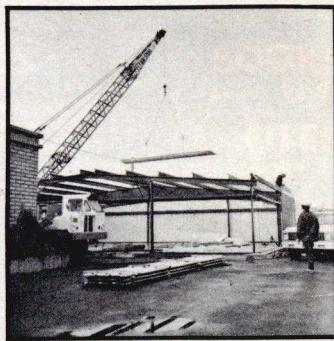
JOSEPH S. BERGEON
General Manager



Shown above is the Jensen Operations Building where your orders are processed and packed.



Our new Administration Building where accounting, marketing and data processing are done.



Pictured above is our new warehouse, shown under construction early last year.

Since publication of the last catalog our business has again grown to double its previous size. We are continually expanding our plant capability to accommodate the additional orders you are giving us.

FIVE REASONS TO BUY FROM JENSEN

JENSEN specializes in tools for electronic assembly and fine mechanics (we do not sell component parts, fasteners, or raw materials). Because of this specialization, we are able to stock in depth the many hard-to-find tools you require in your daily work. It also means that we know our product line, and we can and do provide answers to your many questions and technical problems. Our catalog is well known for its extensive coverage and convenient organization (with items listed according to what they are—not who makes them). We sell quality tools only, and your satisfaction is guaranteed on every order. You'll be pleased with our prompt service. And remember, despite rising Parcel Post and freight costs, JENSEN continues to pay the shipping charges. May we serve you?

GUARANTEE

WE GUARANTEE YOUR SATISFACTION

If, after inspecting your order, you are not totally satisfied, return it prepaid for a prompt refund. It's that simple!

Policies and Conditions of Sale

OUR ATTITUDE TOWARD THE CUSTOMER

It is our company policy to treat each order and each inquiry as a person-to-person encounter. Your questions, comments, and criticisms are genuinely welcomed. Our staff is made up entirely of people who will give you helpful assistance and work out possible problems to your full satisfaction.

HOW TO ORDER

Your order may be submitted on our order blanks, on your company purchase order form, or by telephone or TWX. Our order department telephone number is (602) 959-2210. We do not accept collect telephone calls. Our teletype TWX number is 910-950-1154. Our correct mailing address is 4117 North 44th Street, Phoenix, Arizona 85018. Written purchase orders sent to confirm a telephone order must be boldly stamped "CONFIRMING" or the order may be shipped a second time. Please do not send orders or correspondence to the "remittance" address shown on our invoices. We are open 8:00 A.M. to 4:30 P.M. Monday through Friday, for direct counter sales.

PRICES

The prices in this catalog are net. In the quantities shown, all applicable trade discounts have been deducted. Lower prices may be available for unusually large quantities, and you are invited to write for our current quotation. All prices subject to change without notice.

CREDIT TERMS

Please send payment with your order, or authorize us to charge your Bank Americard or Master Charge (Interbank) card. We will ship open account to firms rated "high" or "good" by Dun and Bradstreet. Our payment terms are: Net 30 days. Accounts placed for collection lose their credit privileges. C.O.D. orders require 25% payment in advance unless the customer is well known to us. Our shipping terms are F.O.B. destination. Jensen pays the surface Parcel Post, truck, or U.P.S. shipping charges to destinations in the continental U.S. (see "Method of Shipment" below). Shipments to Alaska or Hawaii (if other than by Parcel Post) are F.O.B. Phoenix, Arizona.

MINIMUM ORDER

We have no minimum order requirement. However, if your selection totals less than \$10.00, please add 50¢ to help cover packing and handling costs.

TAXES

Arizona residents please add 5% to your order. Colorado residents please add 3% to your order. We reserve the right to add any taxes required by local law or ordinance. Firms operating under tax-free conditions must state applicable license or contract numbers and be prepared to furnish necessary certifications.

METHOD OF SHIPMENT

Your order will be shipped by Parcel Post, UPS, or truck, at our option. If you require another method of shipment (air freight, Air Parcel Post, UPS Blue Label, REA, Greyhound Package Express, etc.) our terms become F.O.B. Phoenix, Arizona, and the entire cost will be charged to you. All C.O.D. orders are F.O.B. Phoenix. We cannot always follow your exact shipping requests due to limitations in services available. Deviations from your request will be made only when necessary and when the charges are for our account.

DELIVERIES

The items listed in this catalog are carried in stock and shipment is normally made within 48 hours after receipt of your order. On request, we will provide custom rush service and hand carry your order through our plant. For surface shipments by Parcel Post or truck, please allow up to three weeks for actual deliveries (after the goods leave our plant).

INQUIRIES

Direct your inquiries to the Order Department. When calling or writing about your order, please tell us the following: Exact name under which order was placed, date of order, purchase order number, whether placed in writing or by telephone, and a general description of the items on the order. Written requests for delivery information can often be handled more efficiently than telephone requests.

BACKORDERS

Should the item you order be temporarily out of stock, it will be placed on backorder. Federal regulation requires that merchandise must be shipped within 30 days or all money refunded. If your cash-paid order will require more than 30 days for completion, an authorization form will be furnished for your prior approval.

GUARANTEE

We guarantee your satisfaction. If, after inspecting your order, you are not totally satisfied, return it prepaid for a prompt refund. It's that simple! This satisfaction guarantee is backed up by the individual guarantees and warranties of the more than 200 manufacturers and suppliers whose products we handle.

CLAIMS AND RETURNS

Inspect all shipments immediately upon receipt. Missing cartons or obvious damage to cartons (shipped by common carrier) should be noted on the delivery receipt before signing. Concealed damage or loss should be reported at once to the carrier and an inspection requested. Losses or damage to Parcel Post shipments should be reported immediately to our Order Department. All claims for shortage or damage must be made within five days after receipt of shipment. Claims for lost shipments must be made within 45 days of receipt of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim is settled. Do not return any goods to us without obtaining prior approval and instructions from our Order Department. Goods returned (unauthorized) by collect freight may be refused. Goods returned which were ordered by customer in error are subject to a 10% restocking charge.

REPAIRS

Contact our Operations Manager for instructions on the repair of tools or apparatus. Do not return goods until instructions have been received. ETM pliers requiring repair should be sent directly to ETM Corp., P.O. Box 888, Monrovia, California 91016.

EXPORT ORDERS

Export orders are shipped only after the customer has requested, received, and approved a pro forma invoice issued by our Export Department. Export terms are always F.O.B. Phoenix, Arizona, and payment in advance is required by check, money order, or irrevocable letter of credit. Orders specifying delivery to an export agent or forwarder in the U.S., if requiring any special documentation, are considered by us to be export orders and are shipped F.O.B. Phoenix, Arizona. All export orders are subject to extra charges for handling, documentation, and special packing.

SALES ON APPROVAL

Sales on approval require a firm purchase order or payment in advance, and are subject to a 10% restocking charge if the goods are returned. Approval terms are applicable only if specified in advance on the order and accepted by us. Goods must be returned within 30 days or the sale is considered final.

LITERATURE REQUESTS

Requests for additional catalogs or to add names to our mailing list should be directed to the Technical Marketing Department.

TECHNICAL ASSISTANCE

Our Operations Manager or the Technical Marketing Department will be pleased to furnish any technical assistance possible to enable you to make your tool selections.

SPECIAL TOOL KITS

The assembly of custom tool kits has become an important part of our business. We furnish thousands of kits each year to business machine and electronic manufacturers who have asked us to take over the task of assembling their specialized kits. Our experience and industry contacts assure prompt delivery from over 200 different tool manufacturers. If your plant or department assembles tool kits for production or field personnel, please consider Jensen as a complete source for finished kits. Please direct your written quotation request to our Technical Marketing Department. By specifying tools listed in this catalog we will be able to offer you the lowest possible prices and fastest service.

JTK-4 CUSTOM TOOL KIT

Enables the engineer, technician, or industrial buyer to combine in kit form the tools most frequently required in his work. Just select from this catalog an assortment of tools having a value of \$50.00 or more. Also, show on your order item "JTK-4". Jensen Tools will include a 15 x 5 1/2 x 6" tool box at no charge. (Solder products and non-tool items excluded. Jensen reserves the right to reject any order not believed consistent with the intent of this offering).

REFERENCES

Jensen Tools and Alloys has been in business since 1963. We are a Bliss & Laughlin Industry, with corporate headquarters at 122 West 22nd Street, Oak Brook, Illinois 60521. We are members of the Phoenix Chamber of Commerce. Our bank is the Arizona Bank, East Indian School Road Branch, Phoenix, Arizona.

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SCREWDRIVERS

The tip of the screwdriver must match the particular screw being turned, both as to type and size. The blade of the screwdriver must be long enough or short enough or specially constructed in such a way as to conveniently transmit the operator's turning torque to the screw. The handle must be shaped to provide a convenient grip for the operator.

DICTIONARY DEFINITION: A tool for turning screws.

IN OTHER LANGUAGES:

German
French
Spanish
Russian
Italian

Schraubenzieher
Tournevis
Desatornillador
Отвёртка
Cacciavite

Glossary of Screwdriver Terms

ALIGNMENT

Shafts and/or tips made of non-conductive non-magnetic materials.

ALLEN

Proprietary name for hex-shaped tip and blade.

AUTOMATIC

Motor or air-driven production screwdrivers.

BALL-END

Special hex-ball tip which can be turned at an angle.

BERYLLIUM

See non-magnetic.

BLADE

Shank or shaft of the screwdriver.

BRISTOL

Proprietary name for spline tip.

BUTTERFLY

See clutch-head.

CABINET

Tip not wider than shaft—for use on recessed holes.

CARPENTER'S

Usually refers to screwdriver with wooden handle.

CLUTCH-HEAD

Special tip shaped like a figure eight.

CROSS-RECESSED

See Phillips.

CROSS-SLOT

Phillips or Reed and Prince tip.

ELECTRICIAN'S

Screwdriver with cabinet tip and/or round blade.

FLEX-SHAFT

Shaft made of flexible material which allows screwdriver to work around corners.

FREARSON

See Reed and Prince.

HEX-TIP

See Allen.

INSULATED

Coating or sleeving on shaft prevents accidental contact with hot electrical circuits.

JEWELER'S

Tiny screwdrivers usually less than 0.1" blade width.

KEYSTONE

Shaped tip (for slotted screws) wider than the shaft to which it is attached.

LAUNCHER

See screw-holding.

MAGNETIC

Tip is intentionally magnetized to hold ferrous screws.

MECHANIC'S

Screwdriver with keystone tip and/or square blade.

METRIC

Tips measured in millimeters rather than inches.

NEON

Screwdriver with lamp in handle to detect voltage.

NON-MAGNETIC

Shaft and tip made of non-ferrous materials, usually Beryllium copper.

OFFSET

Handleless angled screwdriver for use in restricted spaces.

OPTICIAN'S

Jeweler's screwdriver with blades to match small screws found on eyeglasses.

PHILLIPS

Proprietary name for cross-slot rounded "U" tip.

RATCHET

Mechanism in handle eliminates need to remove tips from screw after each forward turn.

REED AND PRINCE

Cross-slot pointed "V" tip

REGULAR

Conventional tip for use on ordinary slotted screws.

ROBERTSON

See Scrulox.

SCREW-HOLDING

Mechanism at tip holds screw in place until threads are engaged.

SCREW-STARTER

See screw-holding.

SCRULOX

Special proprietary tip is square-shaped.

SHOCKPROOF

Refers to plastic insulated handles and/or insulated shafts.

SPLINE

Special tip has four or six flutes.

SQUARE BLADE

Shaft made from square stock which can be turned with a wrench if necessary.

SQUARE-RECESSED

See Scrulox.

STUBBY

Compact screwdriver with short, fat handle.

TORQUE

Screwdriver has a torque indicator built into the tool to tell operator how much force is being exerted.

TORQUE-AMPLIFIER

A hollow handle which fits over regular handle to improve grip.

U-SLOT

See Phillips.

V-SLOT

See Reed and Prince.

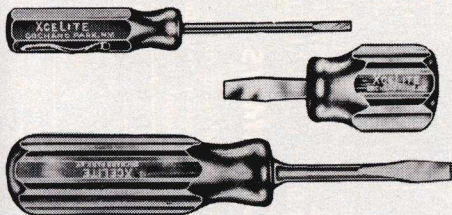
SCREWDRIVERS

regular slot



INDIVIDUAL ELECTRONIC SCREWDRIVERS

The standard of the electronics industry! Forged from tough, SAE 6150 chrome-vanadium electric furnace steel. Xcelite screwdriver blades easily withstand heaviest usage. No twisting or snapping. Slotted tips are ground lengthwise to the blade and are accurately gauged to fit screw slots snugly. Shockproof, breakproof amber UL handles are shaped for perfect grip and balance.



	CATALOG NO.	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH	PRICE EACH
POCKET CLIP STYLE					
$\frac{3}{16}$ " Dia. Blades	R3322	2"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	4 $\frac{1}{2}$ "	\$.47
	R3323	3"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	5 $\frac{1}{2}$ "	\$.52
	R3324	4"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	6 $\frac{1}{2}$ "	\$.55
$\frac{1}{4}$ " Dia. Blades	R181	2"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	4 $\frac{1}{2}$ "	\$.47
	R183	3"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	5 $\frac{1}{2}$ "	\$.52
	R184 $\frac{1}{2}$	4"	$\frac{1}{2}$ " x $2\frac{1}{4}$ "	6 $\frac{1}{2}$ "	\$.55
STUBBY					
$\frac{3}{16}$ " Sq. Blades	S3161	1 $\frac{1}{4}$ "	$\frac{7}{8}$ " x 1 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	\$.74
$\frac{1}{4}$ " Sq. Blades	S141	1 $\frac{1}{4}$ "	1 $\frac{1}{8}$ " x 2"	3 $\frac{1}{4}$ "	\$.81
$\frac{5}{16}$ " Sq. Blades	S5161	1 $\frac{1}{4}$ "	1 $\frac{1}{8}$ " x 2"	3 $\frac{1}{4}$ "	\$.81
REGULAR					
$\frac{1}{8}$ " Dia. Blades	R182	2"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	4 $\frac{1}{2}$ "	\$.56
	R184	4"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	6 $\frac{1}{2}$ "	\$.63
	R186	6"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	8 $\frac{1}{2}$ "	\$.70
	R188	8"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$.81
	R1810	10"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	12 $\frac{1}{2}$ "	\$.92
$\frac{3}{16}$ " Dia. Blades	R5323	3"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	5 $\frac{1}{2}$ "	\$.70
	R5324	4"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	6 $\frac{1}{2}$ "	\$.70
	R5325	5"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	7 $\frac{1}{2}$ "	\$.74
	R5328	8"	$\frac{3}{4}$ " x $2\frac{1}{2}$ "	10 $\frac{1}{2}$ "	\$.92
$\frac{1}{4}$ " Dia. Blades	R3163	3"	$\frac{7}{8}$ " x $3\frac{5}{8}$ "	6 $\frac{3}{4}$ "	\$.89
	R3164	4"	$\frac{7}{8}$ " x $3\frac{5}{8}$ "	7 $\frac{3}{4}$ "	\$.96
	R3166	6"	$\frac{7}{8}$ " x $3\frac{5}{8}$ "	9 $\frac{3}{4}$ "	1.07
	R3168	8"	$\frac{7}{8}$ " x $3\frac{5}{8}$ "	11 $\frac{3}{4}$ "	1.22
	R31610	10"	$\frac{7}{8}$ " x $3\frac{5}{8}$ "	13 $\frac{3}{4}$ "	1.44
$\frac{1}{2}$ " Dia. Blades	R142	2"	1" x $3\frac{3}{4}$ "	5 $\frac{3}{4}$ "	1.06
	R144	4"	1" x $3\frac{3}{4}$ "	7 $\frac{3}{4}$ "	1.23
	R146	6"	1" x $3\frac{3}{4}$ "	9 $\frac{3}{4}$ "	1.34
	R148	8"	1" x $3\frac{3}{4}$ "	11 $\frac{3}{4}$ "	1.49
	R1410	10"	1" x $3\frac{3}{4}$ "	13 $\frac{3}{4}$ "	1.55
$\frac{5}{16}$ " Dia. Blades	R5164	4"	1 $\frac{1}{8}$ " x $4\frac{1}{8}$ "	8 $\frac{1}{4}$ "	1.44
	R5166	6"	1 $\frac{1}{8}$ " x $4\frac{1}{8}$ "	10 $\frac{1}{4}$ "	1.55
	R5168	8"	1 $\frac{1}{8}$ " x $4\frac{1}{8}$ "	12 $\frac{1}{4}$ "	1.66

In lots of 10, deduct 10% from prices shown.



3B185 SET **\$5.25**

FIVE PIECE ELECTRONIC SCREWDRIVER SET

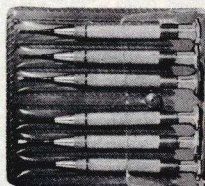
A useful set of five drivers which includes the most popular sizes from the listing at left. Included are drivers R-182 (1/8 x 2" blade), R-5324 (5/32 x 4" blade), R-3166 (3/16 x 6" blade), R-144 (1/4 x 4" blade), and R-5166 (5/16 x 6" blade). The heavy-duty plastic pouch has a grommet for hanging.

TEL VAC

PRODUCTION-QUALITY JEWELERS' SET

Our finest precision screwdrivers. Chrome-vanadium blades are specially hardened and blued, quickly replaced when they do wear out. Set includes six drivers in plastic case—.025, .040, .055, .070, .080, and .100" blade sizes. Handles are 1/4" diameter and 4" long.

579 KIT **\$13.75**



REPLACEMENT BLADES

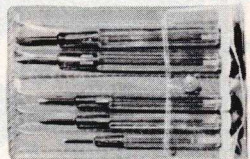
Chrome-vanadium steel blades for 579-series screwdrivers above. Package of six blades (one each .025 to .100").

B-579H BLADE SET **\$2.25**

INSULATED MINIATURE DRIVER SET

A set of five high-quality miniature drivers with insulated handles for working on live equipment. Blades are chrome-vanadium steel. Handles are 3 1/2 to 4 1/2" long. Set includes blade sizes .04, .06, .08, .10, and .12". Plastic case. This set is used for testing and service of electronic equipment.

540 KIT **\$5.75**

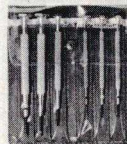


JEWELERS' SERVICE KIT



A lower priced but good quality jewelers screwdriver set in plastic case. Includes six fixed-blade drivers in sizes from .025 to .1". Used for optical work, fine assemblies, and in tool kits.

203 **\$4.10**



VIGOR®

OPTICIANS' DRIVER



Optical-type screwdriver has large head for firm grip and heavy pressure. Clip spring holds double-end blade .060 and .085". Overall length 4.5".

21B200 **\$1.95**

JENSEN TOOL TIPS

Screwdriver Selection



Regular Phillips Clutch Scrulox Reed Prince Spline Allen Hex

PHILLIPS

TIP SIZE	MACHINE SCREWS		WOOD SCREWS		SHEET METAL SCREWS	
	FLAT, OVAL	ROUND	FLAT, OVAL BINDING	ROUND FILLISTER	FLAT, ROUND, OVAL BINDING	
0	0, 1	0, 1	0, 1	0, 1	—	—
1	2-4	2-4	2-4	2-4	2-4	2-4
2	5-9	5-10	5-10	5-10	5-10	5-10
3	10-16	12-16	12, 1/4"	12, 1/4", 5/16"	12, 1/4	12, 1/4

CLUTCH

TIP SIZE	ROUND	BINDING	FLAT	OVAL	FILLISTER	HEXAGON
3/32"	2, 3	2, 3, 4	2, 3	2, 3	2, 3, 4	2, 3
1/8"	6	6	4	4	6	4, 6
5/32"	8, 10	8, 10	6, 8	6, 8	8, 10	8, 10
3/16"	12	12	10	10	12	12
1/4"	14, 1/4"	14, 1/4"	12, 14, 1/4"	12, 14, 1/4"	14, 1/4"	14, 1/4"

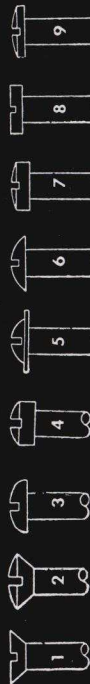
ALLEN HEX

WIDTH ACROSS FLATS	SET SCREWS	1960 SERIES CAP SCREWS	WIDTH ACROSS FLATS	SET SCREWS	1960 SERIES CAP SCREWS
.028"	0	—	1/8"	1/4"	—
.035"	1, 2	—	9/64"	—	8
.050"	3, 4	0	5/32"	5/16"	10
1/16"	5, 6	1	3/16"	3/8"	1/4"
5/64"	8	2, 3	7/32"	7/16"	—
3/32"	10, 12	2-5	1/4"	1/2-9/16"	5/16"

Machine Screw Data

SIZE AND THREAD	SCREW O. D.	FLAT	HEAD O. D. ROUND	FILLISTER ACROSS FLATS	HEX NUT ACROSS FLATS	CLEARANCE DRILL	TAP DRILL
0-80	.060	.119	.11	.096	.156	# 52	#
1-64	.073	.146	.138	.118	.156	47	53
2-56	.086	.172	.146	.124	.187	42	48
3-48	.099	.199	.169	.145	.187	37	44
4-40	.112	.225	.193	.166	.250	31	40
5-40	.125	.252	.217	.187	.250	29	36
6-32	.138	.279	.240	.208	.312	27	33
8-32	.164	.332	.287	.250	.375	18	28
10-32	.190	.385	.334	.292	.375	9	20

HEAD STYLES



1. FLAT
2. OVAL
3. ROUND
4. FILLISTER
5. WASHER
6. OVAL BINDING
7. FILLISTER BINDING
8. FLAT BINDING
9. STRAIGHT SIDE BINDING

TORQUE LIMITS

The following charts list the approximate torque required to twist off screws at root diameter. These screws are made of materials with a tensile strength of 100,000 psi, theoretical values.

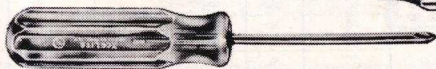
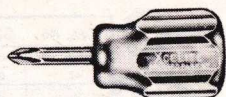
MACHINE SCREWS			
No. 2-64	4 1/2 in. lbs.	No. 8-32	30 in. lbs.
No. 4-36	7 in. lbs.	No. 10-32	53 in. lbs.
No. 4-40	8 in. lbs.	No. 12-24	70 in. lbs.
No. 6-32	15 in. lbs.	No. 12-28	80 in. lbs.

NOTE: For materials of any other tensile strength, the torque required to twist off screws is directly proportional to tensile strength of 100,000 psi. (See Page 18)

SCREWDRIVERS

special slot

XCELITE



PHILLIPS

A complete selection to fit all Phillips screw sizes. Chrome-vanadium steel blades. Precision points. Shockproof, breakproof, amber plastic (UL) handles.

CATALOG NO.	POINT SIZE	BLADE DIAMETER	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH	PRICE EACH
POCKET CLIP STYLE						
P125	0	1/8"	2"	1/2" x 2 1/4"	4 1/4"	\$.63
STUBBY						
SK101	1	3/16"	1 1/4"	3/4" x 1 1/2"	2 3/8"	.96
SK102	2	1/4"	1 3/8"	1 1/8" x 2"	3 3/8"	1.07
REGULAR						
X100	0	1/8"	2"	3/4" x 2 1/2"	4 1/2"	.70
X101	1	3/16"	3"	3/4" x 3 1/2"	6 1/2"	1.03
X108	1	3/16"	6"	3/4" x 3 3/4"	9 5/8"	1.22
X102	2	1/4"	4"	1" x 3 3/4"	7 7/8"	1.25
X103	3	1/4"	6"	1 1/4" x 4 1/4"	10 1/4"	1.85
EXTRA LONG						
X1010	1	3/16"	10"	3/4" x 3 3/8"	13 3/8"	1.55
X1020	2	1/4"	10"	1" x 3 3/8"	13 3/8"	1.74

FIVE-PIECE PHILLIPS DRIVER SET

Set of five most-popular Phillips-type drivers in plastic pouch (similar to 3B185 page 5). Includes X-100 ("0" point, 2" blade), X-101 ("1" point, 3" blade), X-102 ("2" point, 4" blade), X-103 ("3" point, 6" blade), and SX-101 ("2" point, stubby).

3B195 SET **\$6.10**



The ingenious Screw-Launcher wedges into the screw slot by simply manipulating the adjusting sleeve. Suburb gripping power and non-slip driving action to overcome the most stubborn screws even in hard-to-reach places. Blades are made of tough, durable spring steel, hollow ground for perfect fit. Comfortable handles. These extremely handy drivers are fully guaranteed and offered in six sizes.

REED AND PRINCE (Fearnson)

Reed & Prince screws require a different screwdriver from other cross slot screws. Offered in the most used sizes.

CATALOG NO.	BLADE DIAMETER	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH	PRICE EACH
RP101	3/16"	3"	7/8" x 3 3/8"	6 5/8"	\$1.18
RP102	1/4"	4"	1" x 3 3/8"	7 7/8"	1.42
RP103	3/8"	6"	1 1/4" x 4 1/4"	10 1/4"	1.96
RP104	3/8"	8"	1 3/8" x 4 1/2"	12 1/2"	2.38

CLUTCH HEAD

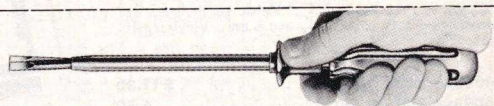
Furnished in the "G" design for ease of operation and positive driving action. Chrome-vanadium steel blades. Shockproof plastic handles.

CATALOG NO.	TIP SIZE	BLADE DIAMETER	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH	PRICE EACH
G3324	3/32"	1/8"	4"	1/2" x 2 1/4"	6 1/4"	\$1.14
G183	1/8"	3/16"	3"	3/4" x 3 1/2"	6 5/8"	1.14
G5324	3/32"	3/16"	4"	3/4" x 3 3/4"	7 7/8"	1.33
G3164	3/16"	1/4"	4"	1" x 3 3/4"	7 7/8"	1.36
G146	1/4"	5/16"	6"	1" x 3 3/4"	9 7/8"	1.66

"SUPER-TRU" PHILLIPS DRIVERS

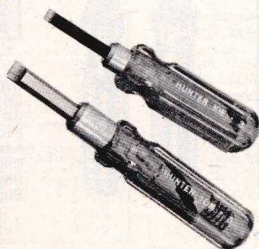
Special black oxide tips for ultimate control on small screws. Closer fit gives longer wear and reduces screw head damage. XST-100 has "0" point and 2" blade. XST-101 has "1" point and 3" handle.

XST-100 **\$.85** **XST-101** **\$1.22**



Catalog No.	Blade Size	Blade Length	Overall Length	Price Each
K-21	1/4"	3"	5 3/4"	\$2.00
K-28	1/4"	8"	10 3/4"	2.15
K-34	3/8"	4"	7 1/2"	2.55
K-36	3/8"	6"	9 1/2"	2.60
K-44	1/4"	4"	7 3/4"	2.73
K-48	1/4"	8"	11 3/4"	2.85

Hunter Magic Tip Screwdrivers



Now you can hold and start screws from tiny 00 size to heavy #10. Fine Hunter Magic-Tip screwdrivers have blades made from specially drawn steels, AISI 4150 alloy tubing. Handles are shockproof, flameproof, Tenite II.

Stock No.	Overall Length	Width of Point	Thickness of Point	Size Fit Screw	Blm. Handle	Blade Length	EACH
10E3	2 1/2"	1/16"	.017	#00 to #2	1/4"	1 1/4"	\$3.05
10E4	4"	1/16"	.017	#00 to #2	3/8"	2 1/8"	3.35
10E7	7"	1/16"	.017	#00 to #2	3/8"	5 1/8"	3.60
10M3	3 1/2"	3/16"	.030	#3 to #6	3/8"	1 1/4"	3.00
10M5	5 1/4"	3/16"	.030	#3 to #6	3/8"	3 3/8"	3.45
10M8	8 1/4"	3/16"	.030	#3 to #6	3/8"	5 1/4"	3.70
10M12	11 1/4"	3/16"	.030	#3 to #6	3/8"	8"	4.10
10A	4"	1/4"	.038	#6 to #10	3/4"	1 1/2"	3.05
10B	6 1/4"	1/4"	.040	#7 to #10	3/4"	4"	3.60
10C	7 1/4"	1/4"	.040	#7 to #10	3/4"	4 1/4"	3.70

In lots of 10, deduct 10% from prices shown.

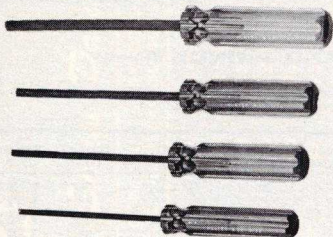
NOW YOU CAN CHARGE IT!



SCREWDRIVERS

hex

Shockproof Hex Drivers



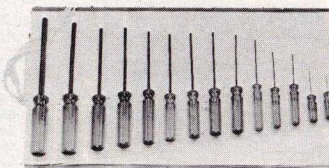
Drive socket screws fast with screwdriver action, save time on assembly line and production jobs. Tough, durable. Blades made from 8650 alloy steel treated for toughness and correct hardness. Shock proof Tenite II plastic handles, individually balanced for each blade size.

Cat. No.	Size	Overall	Price Ea.	10 or more
4Y	.027	4"	\$.96	\$.86
4Z	.035	4"	.96	.86
5	.050	4 1/4"	.80	.72
5A	1/4	5 1/4"	.84	.75
5B	3/8	6"	.88	.79
5C	1/2	6 3/4"	.92	.83
*5C1	3/4	6 3/4"	.96	.86
5D	1/2	6 3/4"	.96	.86
*5D1	3/4	7"	.96	.86
5E	1/2	7 3/4"	.96	.86
5F	3/4	8"	1.06	.95
5G	1/2	8 3/4"	1.18	1.06
5H	1/4	9"	1.42	1.28
5I	3/8	10"	1.68	1.52

Includes drivers for 1960 series*.

14-PIECE HEX DRIVER SET

A complete set of 14 high-quality hex drivers in a plastic roll. Includes all sizes listed above, from .027 to 5/16". Strong, durable blades made from heat treated 8650 alloy steel. Shockproof Tenite II plastic handles correctly sized.



Cat. No. K5M1
Net Ea. \$15.96

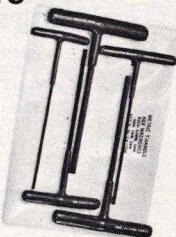
(K5M1 Kit in lots of 10,
\$14.35 each)

T-HANDLE HEX-WRENCH SETS INCH AND METRIC STYLES

High quality alloy steel blades 6" long, heat treated and hardened for long life. Strong blades won't normally bend, twist, or break. Large cushion T-grip handles. Inch set includes eight wrenches—3/32, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, and 3/4". Metric set includes five wrenches—2.5, 3, 4, 5, and 6 mm. Vinyl plastic cases.

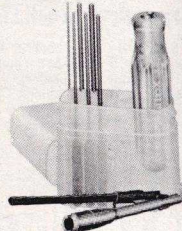
40B386 INCH SET \$ 11.30

40B396 METRIC SET 6.50



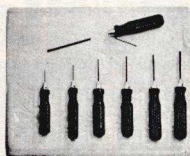
INCH AND METRIC POCKET SETS

Compact hex-driver sets in see-through plastic cases. Set 3B106 includes 9 blades from .050 to 3/4" plus 4" extension handle. Set 3B107 includes 7 blades from 1.27 to 5 mm, plus extension and handle. Flat-bottom cases may be used as bench stands. All items are interchangeable with "99-series" tools on page 63.

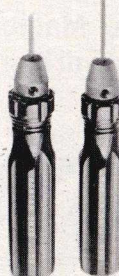


3B106 INCH SET \$8.58
3B107 METRIC SET 9.35

HUNTER ADJUSTABLE HEX-DRIVERS



KIT OF SIX
ADJUSTABLE
HEX DRIVERS
K5N16



Kit of six adjustable drivers described at right. Furnished in plastic roll, complete with 1/4" hex keys to fit set screws in handles.

CAT. NO. K5N16 Ea. \$ 11.54

(Lots of 10 kits or more, \$10.35 each)

Cat. No.	Description	Price
5N10	Adjustable hex driver .050"	\$1.80
5N10A	Package of 10 blades .050"	2.20
5N11	Adjustable hex driver 1/16"	1.80
5N11A	Package of 10 blades 1/16"	2.20
5N12	Adjustable hex driver 5/64"	1.80
5N12A	Package of 10 blades 5/64"	2.20
5N13	Adjustable hex driver 3/32"	1.80
5N13A	Package of 10 blades 3/32"	2.20
5N14	Adjustable hex driver 7/64"	1.80
5N14A	Package of 10 blades 7/64"	2.20
5N15	Adjustable hex driver 1/8"	1.80
5N15A	Package of 10 blades 1/8"	2.20

Extremely popular adjustable hex drivers. Simply loosen the set screw and slide the blade in and out of the handle to the desired length. Set it short to reach into inaccessible equipment. Set it short to provide maximum leverage where screws must be very tight. Blades easily replaced to give these tools extended life. Handles are high-impact, shockproof plastic. Blades are 8650 alloy steel, heated for toughness.

SHOCKPROOF SPLINE SCREWDRIVERS



Spline or "Bristol" type screws are finding increasing use in aerospace and electronic applications. These Hunter screwdriver-style spline wrenches are designed for assembly line and production work. Shock-proof Tenite II plastic handles. Alloy steel blades. Black finish. Overall length 4 1/4".

Cat. No.	Size	Flutes	Cat. No.	Size	Flutes
8	.048	4	8C	.072	6
8A	.060	6	8D	.096	6
8B	.076	4	8E	.111	6

SPLINE DRIVERS (specify type) \$ 1.10
(In lots of 10, \$.99 each)

**SET OF SIX SPLINE DRIVERS ABOVE IN PLASTIC CASE
CAT. NO. K-8L. EACH \$ 6.98**

MINIATURE SPLINE DRIVER SET

A six-piece miniature spline driver set from HUNTER. Set includes five spline driver blades in sizes .033-4, .048-4, .048-6, .060-6, and .069-4, and a fluted red plastic handle. The handle measures 1/2 x 2" and is fitted with a collet chuck to hold the blades securely. The six pieces are furnished in a compact plastic case for pocket or toolbox.



K24Q1 \$4.80

(Also see other spline drivers and spline kits on pages 10, 15, and 63 of this catalog.)



NON-SPARKING BERYLLIUM COPPER SCREWDRIVERS



NON - MAGNETIC

Where You Use Explosion Proof Equipment . . .
YOU SHOULD USE . . . "Non-Sparking" HAND TOOLS

Beryllium-copper alloy is nearly as hard as steel—does not require constant regrinding as with plastic, fibre, or bone. Beryllium-copper drivers are non-magnetic, and thus particularly useful in TV and radar work (as they will not disturb the CRT image).

FOR REGULAR SLOTTED SCREWS

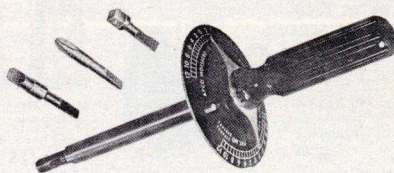
Cat. No.	Blade Dia.	Blade Length	Overall Length	Price Each
BR181	1/8"	2"	4-1/4"	\$.76
BR186	1/8"	6"	8-1/2"	1.56
BR1810	1/8"	10"	12-5/8"	1.79
BR3164	3/16"	4"	7-5/8"	2.22
BR3168	3/16"	8"	11-5/8"	2.89
BR144	1/4"	4"	8-1/8"	2.66
BR146	1/4"	6"	10-1/8"	3.12
BR148	1/4"	8"	12-1/8"	3.56

FOR PHILLIPS-TYPE SCREWS

Cat. No.	Point Size	Blade Length	Overall Length	Price Each
BRX100	0	2"	4-5/8"	\$ 1.33
BRX101	1	3"	6-5/8"	2.71
BRX102	2	4"	8-1/8"	2.89
BRX103	3	6"	10-1/4"	7.99

TORQUE SCREWDRIVERS

APCO MOSSBERG



Use as a torque screwdriver or a torque wrench. For low range tightening in inch ounces or inch pounds. Also available in inch gram ranges on special order. All models are furnished with one slotted (regular screwdriver) bit, one recessed (Phillips-type) bit, and one 1/4" square-drive bit. Double bearings for accuracy.

Cat. No.	Range	Graduations	wt.	length	price
A3	0-3 "oz.	1/4" oz.	8 oz.	8"	\$32.50
A6-1	0-6 "oz.	1/2" oz.	8 oz.	8"	32.50
A12	0-12 "oz.	1 "oz.	8 oz.	8"	32.50
A24	0-24 "oz.	1 "oz.	8 oz.	8"	32.50
B6	0-6 "lbs.	1/2" lb.	10 oz.	8"	36.50
B12	0-12 "lbs.	1 "lb.	10 oz.	8"	36.50

NOTE: ALL OF THE ABOVE SIZES MEASURE BOTH LEFT AND RIGHT ON THE SAME TOOL

B25 Right	0-25 "lbs.	1 "lb.	13 oz.	10"	38.50
B50 Right	0-50 "lbs.	2 "lbs.	13 oz.	10"	45.50

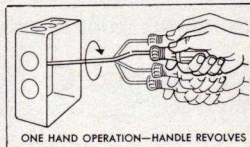
See page 13 for optional 1/4"-drive socket-head (hex) bits.



"SPEEDRIVERS"



An amazing new screwdriver which saves time and reduces hand fatigue. Used by electricians, auto mechanics, and electronic technicians. The "Speedriver" secret is a unique revolving handle which turns like a crank to drive the screw. Requires only one hand. Offered in both Phillips and conventional tip styles. The handle is of clear amber with a soft rubber grip, resistant to oil, gas, and water. Order a set today and see if they don't help speed up your production line or get your installations completed ahead of schedule. All models have 6" blades.



Cat. No.	Blade Size	Screw Type	Price Each
37B510	3/4"	Slotted	\$ 3.25
37B520	1/4"	Slotted	3.25
37B530	#1	Phillips	2.95
37B540	#2	Phillips	3.25
37B550	Set, one each of above		11.55

BERYLLIUM HEX SET

A compact, 10-piece Allen-hex set with interchangeable Beryllium-copper blades. Amber plastic (UL) handle has a brass spring chuck which holds the blades firmly for driving. The kit is furnished in a sturdy, pocket-size plastic case which has a flat bottom for use as a bench stand. The blades have a 4" working length and are furnished in sizes .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, and 3/16". A fine tool set.

**ALLEN-HEX BERYLLIUM-COPPER SET
99PS-42BR EACH \$14.50**



JENSEN PAYS THE SHIPPING CHARGES!



SCREWDRIVERS

additional sets

COMPACT DRIVER SETS

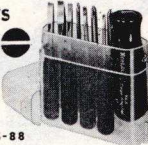
Do more jobs with fewer tools—lighten the service kit. Slim plastic cases fit pocket or serve as bench stands.

XCELITE

FOR SLOTTED AND PHILLIPS-TYPE SCREWS

Includes 5 slot-tip drivers (3/32" to 1/4"), 3 Phillips (#0, #1, #2), torque-amplifier handle, and case. Blades 1" long.

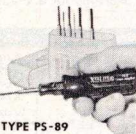
TYPE PS-88



CAT. NO. 3B103 \$ 5.65

FOR ALLEN-HEX SCREWS (INCH)

Midget Allen-hex set includes 8 small blades from .028 to 1/8", plus a torque amplifier handle. Recommended for use on delicate equipment.



TYPE PS-89

CAT. NO. 3B109 \$ 5.65

FOR ALLEN HEX SCREWS (METRIC)



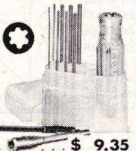
TYPE PS-90MM

A new set, similar to 3B109 above, but includes 8 small metric drivers from .89 to 5 mm., including several hard to find "half" sizes. Torque amplifier handle and see-through case.

CAT. NO. 3B190 \$ 6.85

FOR MULTIPLE SPLINE SOCKETS

Compact set includes 9 Bristol multiple spline blades from .048" to .183", 4" extension shaft, handle, and case.

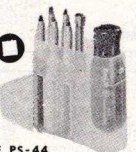


TYPE 99-PS-60

CAT. NO. 3B110 \$ 9.35

FOR SQUARE RECESS SCREWS

Scrulox square-recess screws are coming into increasing use on appliances, T.V. sets, and in "tamper-proof" application. Kit includes 4 drivers sizes 0 to #3, 1/4" nutdriver, handle, and case.

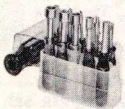


TYPE PS-44

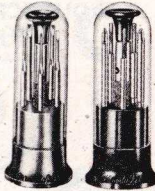
CAT. NO. 3B104 \$ 5.65

11-PIECE POCKET SET

Includes 3 slotted drivers (1/8", 3/16", 1/4"), 2 Phillips (#1 and #2), 5 nutdrivers (3/16", 1/4", 5/16", 3/8", 1/2"), and torque-amplifier handle.



PS-130 \$ 7.35



Moody Tools

PRECISION SCREWDRIVER KITS

Moody kits are widely used by hobbyists and by industry for light assembly. Mini-sized stand has plastic dust cover.

JEWELERS DRIVER SET TYPE SC-5

Includes slot-type screwdriver blades .055, .070, .080, .100", and an awl. Complete with swivel-top, chuck-type handle.

CAT. NO. 41B340 \$ 2.25
(In lots of 12, \$1.95 each)

PHILLIPS-ALLEN SET TYPE PA-5

Includes #0, #1 Phillips-type blades and #4, #6, #8 Allen-type blades. Knurled steel, swivel handle has torque hole for tight fastening.

CAT. NO. 41B345 \$ 3.18
(In lots of 12, \$2.85 each)

FIVE-IN-ONE SCREWDRIVER SET NO. 45

Combination tool folds like a pocket knife. Has 1/4, 3/16, 1/8" slot-type blades #2 Phillips, and a 3/16" awl. Each, \$2.45. Lots of 12, \$2.15 each.



BERGEON NON-MAGNETIC SCREWDRIVERS

Essential to watch repairmen and those working on supersensitive electronic components which cannot be subjected to the slightest degree of magnetism. All parts are completely non-ferrous and non-magnetic. Set contains five drivers .50 to 1.2 mm. Extra set of blades included. Delivered in sturdy box.



4840 \$ 12.95

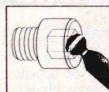
MINIATURE DRIVER SET

Tiny jewelers drivers with plastic handles. Set of 5 from .04 to .10". For light assembly and instrument work.



M50 \$ 2.05

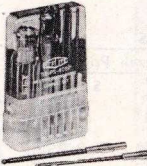
BALL END HEX DRIVER SETS (INCH AND METRIC)



Now you can tighten or remove Allen-type socket screws from any angle, in most restricted locations. Inch set 3B060 includes 9 ball-end hex blades from .050 to 3/16", plus a 5" extension and plastic handle. The very new metric set 3B061 includes 7 ball-end hex blades from 1.27 mm. to 5 mm., plus the extension and handle.

3B060 INCH SET \$12.95

3B061 METRIC SET 11.50



XCELITE

COMBINATION REVERSIBLE DRIVERS



Reversible blade has slotted head at one end, Phillips at other. Chrome vanadium blades snap in and out of handle easily, quickly. Patented spring lock holds them firmly. Metal hex handle socket doubles as 7/8" nutdriver.

Cat. No.	Phillips	Slotted	Net. ea.
CR1	#1	3/16"	\$2.05
CR2	#2	1/4"	2.05
CS2	#2	1/4" stubby	1.95
CR3	#3	3/8"	2.05

MAGNET-TIP SCREWDRIVER

VACO



A permanent magnet built into the shaft of this screwdriver holds interchangeable bits tightly in place. Magnetic force is also transmitted to the fastener, holding it in place for driving. A compartment in the handle holds extra bits. Overall length 9". Two slotted screw bits and two Phillips-type bits are included with each screwdriver.

70035 \$ 4.35

RATCHET SCREWDRIVER

VACO



Use a ratchet-type screwdriver to drive screws quickly and to reach inaccessible spots. A compartment in the handle holds 5 interchangeable bits, including a 7/32" slot bit, a #2 Phillips-type bit, and 3 drill bits in sizes 5/64, 7/64, and 9/64". All parts precision made. Drive is cadmium plated.

CAT NO. 23300 \$ 6.75

RATCHET KITS



4320

6320

For assembly and disassembly in the most restricted spaces. Includes the famous Chapman 20-tooth midget ratchet, extension, 12 Allen-hex drivers from .050 to 3/16", 2 regular slotted drivers 1/4 and 3/8", 2 Phillips drivers #1 and #2, and square adapter to 1/4" drive. Set 4320 furnished in a soft-pack vinyl case. Set 6320 also includes a plastic spinner handle and it comes in a vinyl-covered steel case.

4320 \$ 11.50

6320 13.60



WRENCHES

Wrenches fall into two broad categories—right-angle types (the familiar open-end style) and axial types (nut-drivers). Wrench jaws are fixed or adjustable, depending on the style of wrench. Wrenches and screwdrivers often overlap in their use.

DICTIONARY DEFINITION: A tool for holding or adjusting nuts or bolts.

IN OTHER LANGUAGES:	German	Schraubenschlüssel
	French	Clef
	Spanish	Llave
	Russian	Гаечный ключ
	Italian	Chiave

Glossary of Wrench Terms

ALLEN

Proprietary name for hex-shaped male wrench head.

BASIN

A plumbers' wrench for use in extremely restricted spaces.

BOX

Wrench head with six or twelve points to completely surround the nut or bolt.

BRISTOL

Proprietary name for male spline wrench head.

COMBINATION

A right-angle wrench with open-end head on one end and same size box head on the other.

DEEP SOCKET

A long socket that can turn nuts without interference from protruding bolts.

DOUBLE HEAD

A right-angle wrench with a head at each end, of same or different sizes.

DRIVE-SIZE

Refers to the dimension of the square parts which mate between socket and handles usually $\frac{1}{4}$ ", $\frac{3}{8}$ ", or $\frac{1}{2}$ "-drive.

ELL

Handle for sockets shaped in form of letter "L".

EXTENSION

Adapter to extend working length of spinners and other handles.

FLEX-HANDLE

Similar to a spinner, but shaft is flexible and can work at an angle and even around corners.

HINGE

Socket handle able to work at various angles in close quarters.

HOLLOW-SHAFT

Refers to nutdrivers with hollow shaft able to be slipped down over protruding screws.

IGNITION

Small open-end wrenches used to adjust automobile distributors and for general use in electronics and machinery.

IMPACT

Sockets turned by air or hydraulic pressure or by striking with a mallet.

L-KEY

Male wrench made from one piece of hex stock, bent to provide its own handle.

METRIC

Refers to wrenches having openings measured in millimeters instead of inches.

MONKEY

Adjustable wrench with parallel, smooth jaws used by auto mechanics.

NUTDRIVER

Spinner with socket attached.

OBSTRUCTION

A double-end wrench shaped like a "U" or half moon. For use in restricted spaces.

OFFSET

Heads are positioned at an angle to the handle for convenience in working.

OPEN-END

Familiar mechanic's wrench which grips the hexagonal bolt snugly on two opposite sides.

PALNUT

External-type hex nutdriver.

PIPE

See Stillson.

RATCHET

Mechanism in handle eliminates need to remove handle from socket after each forward turn.

SCREWDRIVER SOCKET

Slotted, crosspoint, clutch, hex, or other screwdriver blade attached to a socket to allow its use with various wrench handles.

SET-SCREW SOCKET

Male hex blade attached to a socket to allow its use with various wrench handles.

SLIDING-T

Fixture which mates with socket can be slid along a straight bar to provide desired degree of torque and one-hand or two-hand operation.

SOCKET

A cap (with provision for turning by a handle or driver) that fits snugly over a bolt or nut. May have 4, 6, 8, or 12 points to match various fasteners.

SPINNER

Screwdriver-appearing tool used to turn sockets.

SPLINE

Male wrench head usually has four or six flutes.

STILLSON

Adjustable wrench with serrated jaws for holding pipe.

TORQUE

Wrench has a torque indicator built into the tool to tell operator how much force is being exerted.

UNIVERSAL JOINT

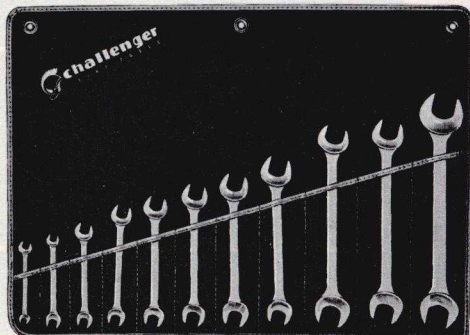
Adapts a straight handle to a socket and allows it to be operated at an angle.

WRENCHES

open-end

ALLOY STEEL OPEN-END SET

PROTO
CHALLENGER



Perfect balance and "feel". Bodies are hot forged from the finest alloy steel, then precision machined and beautifully chrome plated. The set contains 11 wrenches in sizes from $\frac{1}{4}$ " to 1", plus a heavy-duty vinyl roll-up pouch with grommets for hanging. Can be carried in tool box or hung on pegboard.

5709 \$ 29.95

METRIC OPEN-END SET

A 10-piece set similar to the above, but wrenches are in millimeter sizes from 6 to 26. Same vinyl roll pouch.

5710-M (Metric set) \$ 26.25

MIDGET IGNITION WRENCHES



Extremely popular in instrument and electronic work. Same size opening is offset 15° at one end and 75° at other. Finest quality forged steel—chrome plated. Set 1900-D-10 includes 10 wrenches from $\frac{3}{16}$ " to $\frac{1}{2}$ ". Set 1900-D-6 includes 6 wrenches from $\frac{7}{16}$ " to $\frac{1}{2}$ ". Both sets furnished in heavy-gauge vinyl roll pouches.

1900-D-10 (10 wrenches) \$ 15.95

1900-D-6 (6 wrenches) 9.95

METRIC IGNITION SET

Set of 10 wrenches similar to above (same size each end) but furnished in metric sizes from 4 to 14 millimeters.

46-10M (Metric set) \$ 16.75

ADJUSTABLE WRENCHES

Diamalloy wrenches are made of alloy steel of remarkable strength, far exceeding all Federal specifications. Chrome plated with side of head buffed to a high lustrous finish. One-hand adjustment matches wrench to any nut or bolt in its range. Wide-jaw wrenches below are shorter and thinner than regular pattern and have green vinyl grips.

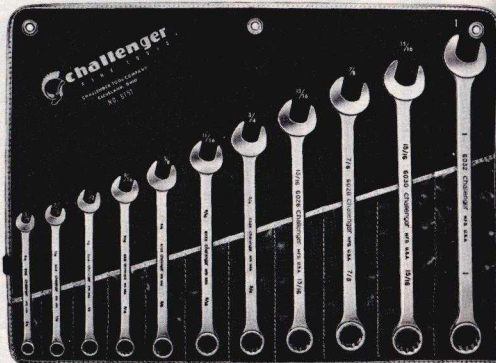
STANDARD-JAW PATTERNS

Cat. No.	Length	Max. Opening	Net each
D74	4"	$\frac{1}{2}$ "	\$3.90
D76	6"	$\frac{3}{4}$ "	3.90
D78	8"	$1\frac{1}{16}$ "	4.50
D710	10"	$1\frac{1}{8}$ "	5.70
D712	12"	$1\frac{1}{2}$ "	8.20

WIDE-JAW PATTERNS

Cat. No.	Length	Max. Opening	Net Each
S-6W	6"	$1\frac{3}{4}$ "	\$4.20
S-8W	8"	$1\frac{1}{2}$ "	4.80
S-12W	12"	$1\frac{1}{2}$ "	8.70

ALLOY STEEL COMBINATION SET



This is a beautiful set of 11 combination box wrenches (open-end on one end—box head on other). Includes sizes from $\frac{3}{4}$ " to 1" (in $\frac{1}{16}$ " steps). Quality of forgings and finishing same as for open-end wrenches at left. This set recommended as a long-term investment in fine tools. Furnished in heavy-duty roll pouch with grommets.

6151 \$ 32.00

METRIC COMBINATION SET

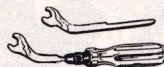
A deluxe metric set similar to above, but includes 17 combination wrenches from 6 to 22 millimeters. With vinyl roll pouch.

6101-M (Metric set) \$ 45.95

MINIATURE OPEN END SETS

HI

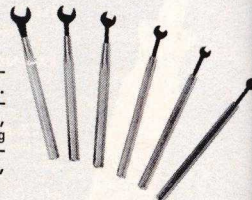
HUNTER INTERCHANGEABLE SET



Set of tiny open-end wrenches with offset heads for use in restricted spaces. Interchangeable blades let one handle serve for five different wrenches. Handle is fluted red plastic. Collet chuck holds wrenches firmly. Wrench sizes $\frac{3}{16}$ ", $\frac{7}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", and $\frac{3}{8}$ ".

K-24U \$ 4.55

MINIATURE 6-PIECE SET



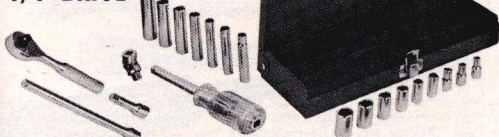
A set of six steel open-end wrenches with smooth oxide finish. Wrenches are set in aluminum handles—ideal for use on instruments, small machines, any job using small fasteners where space is restricted. Includes sizes $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ ", and $\frac{3}{16}$ ".

108B656 \$ 5.85

DIAMALLOY



PROTO PROFESSIONAL 21-PIECE SOCKET SET 1/4"-DRIVE



This is our finest socket set, containing 21 pieces. Each item in the kit has been designed and manufactured to exceed rigid industrial and professional standards. Special alloy steels are skillfully forged and scientifically heat treated for longest life. Included in this superb set are nine 6 pt. sockets $\frac{3}{16}$ " to $\frac{1}{2}$ ", seven deep sockets $\frac{1}{4}$ " to $\frac{1}{2}$ ", Proto reversible ratchet handle, a 2" extension, a 6" extension, plastic spinner handle, universal joint, and a sturdy metal box measuring 12 x 4 x 1 $\frac{1}{4}$ ". An expensive set, but the Proto Professional quality makes it a lifetime investment.

4700E \$ 49.65

PROTO-CHALLENGER 16-PIECE SET 1/4"-DRIVE

An outstanding value. This kit includes six 6 pt. sockets $\frac{3}{16}$ " to $\frac{1}{2}$ ", five 12 pt. sockets $\frac{3}{16}$ " to $\frac{1}{2}$ ", ratchet handle, 3" extension, 6" extension, plastic spinner handle, and tough plastic box. Proto-Challenger tools are highly recommended for their fine quality and low cost.



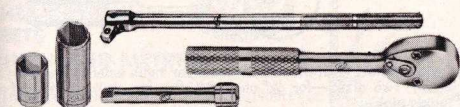
61B105 \$ 17.25

METRIC SOCKET SET

A $\frac{1}{4}$ "-drive socket set similar to the 16-piece set described above, but with six metric sockets from 7 to 12 mm., ratchet handle, sliding T handle, plastic spinner handle, and metal box. Sockets are chrome-vanadium steel.

35B470 \$ 21.50

INDIVIDUAL SOCKETS AND ACCESSORIES FOR 1/4"-DRIVE



Hardened and tempered alloy steel, bright chrome plated. May be used with torque screwdrivers page 9.

6-PT. STD. LENGTH SOCKETS

Cat. No.	Size	Net Each
1006C	3/16"	\$.82
1007C	7/32"	.84
1008	1/4"	.84
1009	9/32"	.87
1010	5/16"	.87
1011	11/32"	.91
1012	3/8"	.91
1014	7/16"	.96
3116S	1/2"	1.02

6-PT. DEEP SOCKETS

Cat. No.	Size	Net Each
3176	3/16"	\$1.59
3177	7/32"	1.59
1108	1/4"	1.91
1109	9/32"	1.93
1110	5/16"	2.00
1111	11/32"	2.04
1112	3/8"	2.04
1114	7/16"	2.07
1116	1/2"	2.11

ACCESSORIES FOR 1/4" — DRIVE SOCKETS ABOVE

Cat. No.	Description	Length	Net Each
1070	Steel grip hinge handle	5-1/4"	\$3.42
1060	Reversible oval-head ratchet handle	5-1/2"	6.95
1065	Shaft extension attachment	3"	1.58
1063	Plastic-handle spinner	6"	2.60

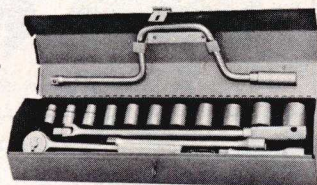
PROTO-CHALLENGER 24-PIECE COMBINATION SET 1/4-3/8"-DRIVE



A combination set of 24 pieces with both $\frac{1}{4}$ " and $\frac{3}{8}$ "-drive sockets. Included are nine $\frac{1}{4}$ "-drive 6 pt. sockets from $\frac{3}{16}$ " to $\frac{1}{2}$ ", eight $\frac{3}{8}$ "-drive 12 pt. sockets from $\frac{3}{16}$ " to 1", plastic spinner handle, ratchet handle, two extensions, and a $\frac{1}{4}$ " to $\frac{3}{8}$ " adapter. Metal box.

2095 \$ 31.25

PROTO-CHALLENGER 1/2"-DRIVE SET



For use on larger equipment such as automobiles, trucks, vans, trailers, generators, machinery. Includes eleven 12 pt. sockets from $\frac{3}{16}$ " to 1 $\frac{1}{4}$ ", ratchet handle, 5" and 11" extensions, 16" flex handle, 18" speeder handle, and metal box.

2501 \$ 46.25

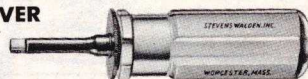
"HAMMERWRENCH"



For stubborn nuts and screws. Needs no air or electricity. Striking end of tool with hammer turns wrench in either direction. Kit includes Hammerwrench with $\frac{3}{8}$ "-drive adapter, $\frac{3}{16}$ " slotted screwdriver bit, #2 and #3 Phillips bits, and metal box.

4075A-5 \$ 13.95

RATCHET DRIVER



For $\frac{1}{4}$ "-drive sockets. Ratchets both directions. Husky high-impact plastic handle (1 $\frac{1}{2}$ " dia.) can be pounded with a hammer to drive and turn at same time. Good installer's tool.

3156 \$ 7.95

MALE HEX SOCKETS



Adapt $\frac{1}{4}$ "-drive handles to male hex in sizes shown.

Cat. No.	Size	Net Each
31K4	1/16"	\$1.95
31K5	5/64"	1.95
31K6	3/32"	1.95
31K8	1/8"	1.95
31K10	5/32"	1.95
31K12	3/16"	1.95
31K14	7/32"	1.95
31K16	1/4"	1.95

METRIC SOCKETS 4-12 MM.

Set of 9 metric sockets (6 pt.) for $\frac{1}{4}$ "-drive equipment. Use with $\frac{1}{4}$ "-drive handles at left. In plastic bag.

35B092 \$10.85

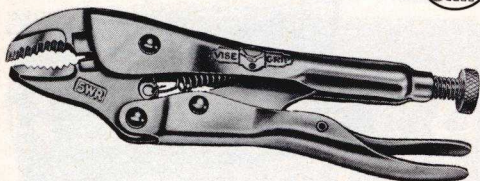
JENSEN PAYS THE SHIPPING CHARGES !



WRENCHES

misc.

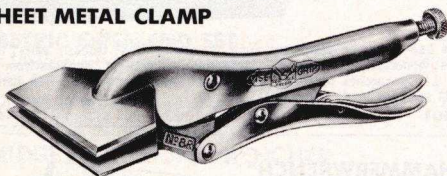
WISE-GRIP LOCKING PLIERS



The famous "plier with a bolt in its leg." Provides up to a ton of pressure. Once locked, it doesn't slip. Use it as a portable vise or powerful wrench. Knurled jaw tips fit all sizes of nuts, pipe, bolts, metal stock. Thin jaw reaches into restricted spaces. Wire cutter models can even cut $\frac{1}{4}$ " bolts by taking progressive bites. Heat-treated tough alloy steel with bright nickel plate.

Cat. No.	Length	Jaws	With cutter	Price each
5WR	5"	Curved	Yes	\$3.95
7WR	7"	Curved	Yes	4.25
10WR	10"	Curved	Yes	4.50
7R	7"	Straight	No	3.95
10R	10"	Straight	No	4.35

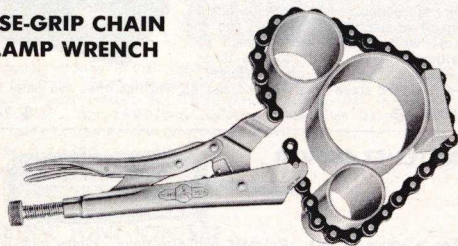
WISE-GRIP SHEET METAL CLAMP



Locks to the work with a tremendous grip. Material can't slip. Use it for bending or holding sheet metal, welding, glueing. This tool is 8" long with $3\frac{1}{4}$ " jaw width.

8R \$ 5.95

WISE-GRIP CHAIN CLAMP WRENCH



Locks onto anything the chain can be wrapped around, up to 19" Will not slip or mar work. Powerful grip—adjusts with ratchet-like action. When you need it, there is no other tool like this one.

20R \$ 9.95

VACO RATCHET SETS

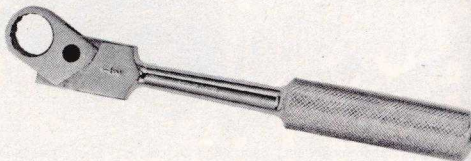
Ratchet box wrenches save time and allow working in restricted spaces. Different size opening each end. Each wrench is nickel-chrome plated for lasting beauty and durability. Set 36B342 includes three wrenches with openings of $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and $\frac{1}{2}$ " in plastic pouch. Set 36B340 includes those same wrenches plus two additional wrenches with openings of $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ ". Sizes $\frac{1}{4}$ through $\frac{3}{4}$ " are single hex. Larger sizes are double hex. Leatherette pouch may be hung up or rolled.

36B342 (SET OF 3) \$14.75
36B340 (SET OF 5) 24.50

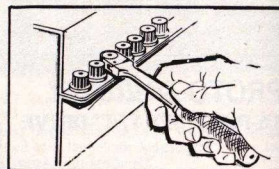
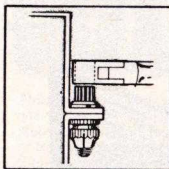


CLOSE-CLEARANCE RATCHET WRENCHES

MILBAR



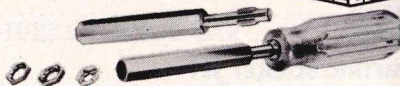
Originally designed for hard-to-get-at spots in aircraft, jet, and missile engines. Thin, strong wall does not exceed the flange diameter of 12-point screws. Ratchet action makes this tool ideal for close quarter tightening or removal of 6 pt. or 12 pt. socket screws and nuts.



Cat. No.	Size	Each	Cat. No.	Size	Each
412-188	$\frac{3}{8}$ "	\$18.20	412-375	$\frac{3}{4}$ "	\$20.60
412-250	$\frac{1}{4}$ "	18.20	412-438	$\frac{3}{8}$ "	20.60
412-313	$\frac{5}{8}$ "	19.00	412-500	$\frac{1}{2}$ "	23.50

INVERTED PALNUT DRIVER SET

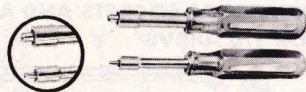
XCELITE



For removal of Palnuts of the most common sizes found on balance controls, on-off switches, volume controls, etc. Consists of two Palnut driver shanks in sizes $\frac{7}{8}$ " and $\frac{1}{2}$ ", plus a plastic handle. Shanks are hollow so they may be easily slipped over a projecting shaft to reach the Palnut.

38040 \$ 4.12

TERMINAL DRIVERS



For use with spanner (barrel) nuts on transistor radio antenna and ear-phone jacks. Two sizes—for $\frac{1}{4}$ " nut (.086" guide pin) and $\frac{3}{8}$ " nut (.140" guide pin).

38101 (Set of two wrenches) \$ 1.65

SELF-ADJUSTING DRIVER

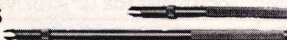


VACO

One nutdriver does the work of four. Simply press against hex nut of any size between $\frac{1}{4}$ and $\frac{3}{4}$ ". Too-small hex blades withdraw into shaft leaving proper size blade to grip nut. Saves much time in service and production work.

36B030 \$ 4.95

SCREW STARTERS

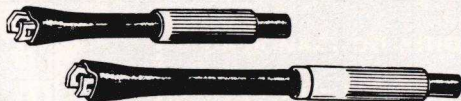


Hold, start, or retrieve Phillips-type cross slot screws with precision and speed. Special blades grip screw ends.

36B019 (5" long) \$ 2.80
36B021 (9" long) \$ 3.05

TIP WRENCHES

G & G TOOL CO.



An amazingly versatile tool! Acts as a screwdriver, screw starter, and self-adjusting socket wrench. Grips nuts, screws, bolts—for reaching, starting, tightening, and loosening—all in one setting. Hardened steel sliding jaws. Insulated barrel. No. 0 is 4 1/4" long—takes #2 to #8 nut or screw. No. 1 is 8 1/4" long—takes #2 to #8. No. 2 is 8 3/4" long—takes #6 to #12. No. 3 is 4 1/2" long—takes #6 to #12 nut or screw. State size when ordering.

GG-7 (State size) \$ 4.50
(In lots of 10, \$3.95 each)

OFFSET DRIVERS

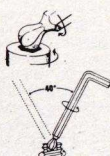


Use these handy tools to drive screws in tight places. Every tool box or kit should include several. Slotted-screw style are same size each end with blades oriented 90° to each other. Bright nickel-chrome finish. VK-100 is a set of one each of all five types.

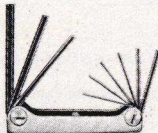
Cat. No.	Type	Screw Sizes	Length	Price Each
VO-1	Slotted	#2-#6	3"	\$.71
VO-2	Slotted	#6-#10	4"	1.14
VO-3	Slotted	#8-#12	5"	1.29
P-120	Phillips	#1 and #2	4 1/2"	.99
P-230	Phillips	#2 and #3	5"	1.64
VK-100	Set of 5 drivers described above			5.65

BALL-END HEX-KEY SET

Ball-end L-keys make removal and installation of socket screws easy; even in tight places. Each key can be inserted in screw at angle up to 20° without binding. Set includes seven ball-end keys in sizes 3/64, 1/32, 1/64, 1/8, 3/32, 1/16, and 1/8".



70172 \$ 6.45

FOLD-UP HEX-KEY SETS
(INCH AND METRIC)

These sets eliminate the lost key problem. Chrome-nickel alloy steel blades slip easily into screws. Handle snaps into right-angle position for use—fold up like a jackknife when not in use. Small inch set 91 includes 9 keys from 3/64 to 1/4". Inch set 91-S has 9 keys from .050 to 3/16". Small metric set M17 includes 7 keys from 1.5 to 6 mm. Metric set M15 has 5 extra-long keys from 4 to 10 mm. Handle fits the hand—easy to grip and turn.

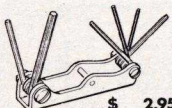
91 SMALL INCH SET \$2.75
91-S MEDIUM INCH SET 2.25
M17 SMALL METRIC SET 3.20
M15 LARGE METRIC SET 4.95

(In lots of 12, deduct 10% from prices above)

"SMITTY" SPLINE SETS

Hunter 6-blade spline set includes most-wanted sizes .048, .060, .076-4, .072, .096, and .111. Alloy steel, heat treated and hardened.

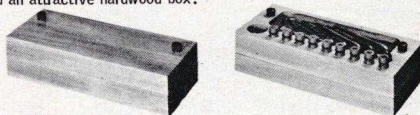
7 Smitty \$ 2.95
(In lots of 10, \$2.65 each)



UNIVERSAL KEY DRIVER



The first common-sense, high-torque driver for use with any type of L-key (English or metric) up to 0.217". Takes Allen-hex, spline, clutch, Scrufox, Phillips, Reed and Prince, slotted, or any other L-shaped key or driver blade. This tool is versatile, strong, and economical, with no set screws or plastic to strip, loosen, or break. No special bits to replace—simply use plain L-shaped keys. If key is damaged, throw it away and replace it with another without in any way damaging the Universal Driver. Handle is made of aluminum alloy and measures 5 1/4" x 1 1/4" diameter. Bushings simply press into place and are held by rubber O-rings. Set includes handle, nine bushings to accommodate keys up to 3/16" hex, a set of nine hex keys from .050 to 3/16", and an attractive hardwood box.



GLA-0151 \$ 15.50
(In lots of 10 sets, \$11.95 each)

SHORT-ARM HEX KEYS



Made by Bristol Socket Screw Division of American Chain and Cable Co. The finest hex keys we can buy. Made to precise standards—then hardened, tempered, and heat treated. Black oxide finish.

CAT. NO.	1Y	1Z	2	2A	2B
SIZE	.028"	.035"	.050"	3/64"	1/8"
PRICE/10	\$1.25	\$1.25	\$1.12	\$1.12	\$1.12
PRICE/100	6.58	6.58	5.60	5.60	5.60

CAT. NO.	2C	2C1	2D	2D1	2E
SIZE	3/32"	1/4"	1/4"	3/4"	1/2"
PRICE/10	\$1.20	\$1.30	\$1.30	\$1.68	\$1.68
PRICE/100	6.05	6.52	6.52	8.41	8.41

BRISTOL SPLINE KEYS



Genuine Bristol spline keys—the finest we can buy. Made to precise standards—then hardened, tempered, and heat treated. Black oxide finish.

CAT. NO.	S-033-4	S-048-4	S-048	S-060	S-069-4
SIZE	.033	.048	.048	.060	.069
FLUTES	4	4	6	6	4
PRICE/10	\$1.68	\$1.68	\$1.68	\$1.68	\$1.68
PRICE/100	8.45	8.45	8.45	8.45	8.45

CAT. NO.	S-076-4	S-072	S-096	S-111	S-133
SIZE	.076	.072	.096	.111	.133
FLUTES	4	6	6	6	6
PRICE/10	\$1.68	\$1.75	\$1.75	\$1.75	\$1.85
PRICE/100	8.45	8.85	8.85	8.85	9.45

KEY SETS

Sets 850, HL-307, and 870 made from genuine Bristol keys described above. Metric set UP-28 made by Upland. Set 850 includes 10 short arm hex keys from .028 to 3/16". Set HL-307 has 9 long-arm keys from 3/64 to 1/4". Set 870 includes 10 short-arm spline keys in sizes .033 to .133. UP-28 set has 7 short-arm metric keys from 2 to 8 mm.

850 Short-arm hex key set \$1.69
HL-307 Long-arm hex key set 2.60
870 Short-arm spline key set 1.95
UP-28 Short-arm metric hex key set 1.50

(In lots of 10 sets of a kind, deduct 10%.)

TEL-VAC



NOW YOU CAN CHARGE IT!



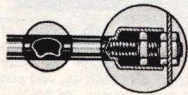
WRENCHES

nutdrivers

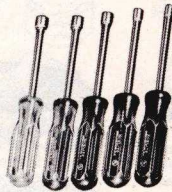
HOLLOW-SHAFT NUTDRIVERS

Featuring precision, cold drawn, case-hardened sockets, Xcelite nutdrivers have high carbon steel shafts, polished and plated . . . shockproof, breakproof, firm grip, plastic (UL) handles.

Handles are color coded and marked with large, readable sizes so there's no fumbling . . . you reach for the right one every time.



Hollow Shaft Design!



CATALOG NO.	COLOR CODE	HEX OPENING	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH	PRICE EACH
HS6	Black	3/8"	3 1/4"	1" x 3"	6 1/2"	\$1.40
HS7	Brown	3/8"	3 1/4"	1" x 3"	6 1/2"	
HS8	Red	3/8"	3 1/4"	1" x 3 3/8"	7"	
HS9	Orange	3/8"	3 1/4"	1" x 3 3/8"	7"	
HS10	Amber	3/8"	3 1/4"	1" x 3 3/8"	7"	
HS11	Green	1/2"	3 1/4"	1" x 3 3/8"	7"	\$1.64
HS12	Blue	3/8"	3 1/4"	1" x 3 3/8"	7"	
HS13	Amber	1/2"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS14	Brown	3/8"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS15	Amber	1/2"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS16	Red	3/8"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	\$1.68
HS17	Amber	1/2"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS18	Orange	1/2"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS19	Amber	1/2"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	
HS20	Amber	3/4"	3 1/4"	1 1/4" x 4 1/8"	7 1/2"	

EXTRA-LONG NUTDRIVERS



XCELITE

Xcelite extra-long nutdrivers provide extra reach for those difficult jobs. Color coded. Full hollow shaft.

NET EA. (specify size) \$ 1.72

CATALOG NO.	HEX OPENING	BLADE LENGTH	HANDLE DIMS.	OVERALL LENGTH
A6	3/8"	6"	1" x 3"	9"
A7	3/8"	6"	1" x 3"	9"
A8	3/8"	6"	1" x 3"	9"
A9	3/8"	6"	1" x 3"	9"
A10	3/8"	6"	1" x 3"	9"
A11	1/2"	6"	1" x 3"	9"
A12	1/2"	6"	1" x 3"	9"

STUBBY NUTDRIVERS

Stubby nutdrivers provide extra torque. Reach confined spaces. Color coded. Solid shaft.



CATALOG NO.	HEX OPENING	BLADE LENGTH	HANDLE DIMS.
S6	3/8"	1 1/4"	1 1/4" x 2"
S8	3/8"	1 1/4"	1 1/4" x 2"
S10	3/8"	1 1/4"	1 1/4" x 2"
S11	1/2"	1 1/4"	1 1/4" x 2"
S12	3/4"	1 1/4"	1 1/4" x 2"

NET EA. (specify size) \$1.08

MAGNETIC NUTDRIVERS

Eliminate fumbling! Alnico magnet on tip holds ferrous hex screws, bolts, and nuts for rapid starting and tightening. Both types 7" long. 8-M has 1/4" hex opening. 10-M has 3/8" hex opening.

8-M \$ 1.96
10-M 1.96



HOLLOW-SHAFT KIT

10 DRIVERS IN
PLASTIC
CASE

NET
\$14.90

10 hollow-shaft nutdrivers in a plastic desk case. Included are HS-6 through -12, plus -14, -16, and -18.

HS-6-18 NET EACH \$14.90



COMPACT PS-120 POCKET KIT

Compact, convertible nut driver set. Consists of 10 midsize tools plus a remarkable "piggy back" torque amplifier hollow handle. Slipped over the top of the midsize tool handles, it provides a larger gripping surface, extends the reach, and increases driving power. Complete with sturdy, pocket-size, see-through plastic case which also serves as a bench stand. Includes 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, and 3/8" nut drivers (3-1/2" long) plus torque amplifier handle.

PS-120 NET EA. \$7.80



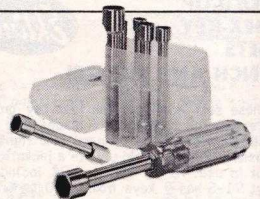
INTERCHANGEABLE HOLLOW-SHAFT SET

...with thru-drilled handle



HSC-1

A new, extremely versatile nutdriver set for production, maintenance, and service work. Kit HSC-1 features a drilled handle for use on combination locknut and slotted screw adjustments. Screwdriver passes completely through! Set includes handle, 8 nutdriver blades (sizes 3/16 to 9/16") that snap in and out with ease, and see-through plastic pocket case.



KIT HSC-1 . . . NET \$11.80

METRIC NUTDRIVER KIT

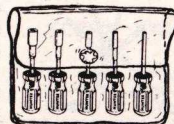
Compact set of nutdriver blades, extension, and plastic handle in metric sizes from 4 mm. to 11 mm. Handy pocket size plastic case with flat bottom serves as a bench stand. For use on European and Japanese electronic equipment and machines.



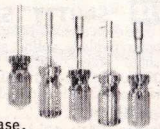
3B650 EACH \$11.45

MINIATURE NUT DRIVERS

Tiny HUNTER socket wrenches for use on instruments and small assemblies. Each high-quality steel wrench is permanently fitted to its own fluted, red plastic handle. Five sizes from 5/64 to 5/32".



Cat. No. K-24H"
Net Each \$5.45
(10 or more, \$4.90)



Kit of 5 drivers in plastic case.

PLIERS

The important component parts in a "pair" of pliers are the handles, the joint, and the tips or cutting head. Pliers are available in a wide range of styles and sizes, and are used principally for bending and cutting wires.

DICTIONARY DEFINITION: Small tools for gripping, composed of two limbs crossed and pivoted.

IN OTHER LANGUAGES:

German	Zange
French	Pinces
Spanish	Pinzas
Russian	Клюш
Italian	Pinze

Glossary of Plier Terms

BOX JOINT

Instead of overlapping limbs, one limb is fitted inside a cutout opening in the other limb. The box joint is long-wearing and considered more accurate than the lap joint.

CHAIN NOSE

A short, strong long-nose plier originally used by jewelers to make chains from wire.

COMBINATION

Pliers having one round nose and one flat nose limb, used in jewelry making.

CRIMPING CUTTER

Refers to cutters which crimp the end of the cut-off wire so that it will not fall back through a circuit-board.

DIAGONAL OR DIKE

Refers to cutting pliers which have their cutting edges aligned at a slight angle to the limbs.

DOUBLE END

Two pair of production pliers having the ends of their handle jointed to each other so that the operator may have two choices of working ends without putting down the tool.

DUCKBILL

See flat nose.

FLAT NOSE

Having tips with flat, wide surfaces.

FLUSH CUT

A cutter edge design which leaves the cut-off wire end perfectly square.

GAS PLIERS

Simple slip-joint pliers in familiar household or automotive pattern.

GROOVE JOINT

See slip-joint.

HEMOSTAT

A surgeon's pliers with locking feature and scissor-type handles.

HIGH HARDNESS

Cutting tools having edges of carbide or special tool steel to handle hard steel or nickel wires or ribbon.

INSERT

Refers to cutters which have separate tips of tool steel or carbide usually welded into place on the cutter limbs.

INSTRUMENT

Refers to small precision pliers.

LAP JOINT

Conventional plier joint where one limb lies against the other.

LINEMAN

Side-cutting pliers used by utility linemen and electricians.

LONG NOSE

A conventional wire-bending plier with long reach.

NEEDLE NOSE

Having long, narrow tips to reach restricted spaces.

NIPPER

Cutting pliers which have their cutting edges aligned at right angles to the limbs.

PINCERS

Synonym for pliers.

RELAY

Small, thin-bladed flat nose pliers used to adjust relay contacts.

RETAINING RING

Pliers (similar to round nose) designed to open or close retaining rings. Known as "internal" or "external", depending on the type of ring used.

ROUND NOSE

Having tips that are round and tapered almost to a point.

SCREW-JOINT

A machine screw instead of a rivet is used at the axis of the joint and it may be tightened periodically to overcome wear.

SEMI-FLUSH CUT

A cutter edge design which leaves only a small peak on the cut-off wire end.

SERRATIONS

Grooves cut into the plier tips to facilitate the holding of wires.

SHEAR CUTTERS

Cutting pliers with scissors-like action which lessens shock on sensitive electronic components.

SIDECUTTING

Pliers which have cutting edges aligned parallel to the limbs.

SLIP JOINT

Pliers having an adjustable joint to allow a wide range of jaw openings.

SMOOTH EDGES

No serrations.

SNAP RING

See retaining ring.

SWEDISH

Refer either to pliers made of Swedish steel, or to a familiar head pattern for diagonal cutters.

TRANSVERSE CUTTERS

Cutting pliers having small, nipper-type cutting edges at the end of the limbs.

WATER PUMP

See slip-joint.

WIRE GRIPPING

Refers to a wire-cutting plier which does not release the cut-off wire segment until the jaws are opened by the operator.

WIRE STRIPPING

Cutting pliers equipped with one or more small holes adjacent to the cutting-edge to allow double-duty use as a wire stripper.

JENSEN TOOL TIPS

Tool Materials

Many different steels are used in the manufacture of tools. Depending on the application (cutting, shearing, forming), different combinations of hardness, toughness, strength, and resistance to wear and corrosion will be required. Variations are achieved by altering the carbon content of the steel (tool steels), by adding other elements such as chromium, vanadium, molybdenum, nickel (alloy steels), and by heat treating.

Tool steels which provide the hardest and longest-lasting working edges are generally more expensive, more difficult to machine or forge, and require more difficult heat-treating processes. The very hardest materials (certain high-carbon tool steels and carbides) cannot be machined at all, but must be ground to the proper shape, with working edges brazed in place on the tool. Although more expensive initially, tools made from these harder materials are often more economical in the long run.

Stainless steels are generally not as hard or as long-lasting as tool steels, but they have much less tendency toward rusting. Other special alloys exist which provide compromise qualities of corrosion resistance, hardness, and susceptibility to magnetism. Beryllium copper tools, although not as long lasting as steel tools, are non-sparking and non-magnetic.

TENSILE STRENGTH







MATERIAL	TENSILE STRENGTH LBS./SQ. IN.
Aluminum, rolled	13,000 to 24,000
Brass	40,000 to 120,000
Copper, annealed	32,000
Copper, hard drawn	68,000
Iron, annealed	42,000
Phosphor bronze	40,000 to 130,000
Steel, annealed	70,000 to 290,000
Tungsten	200,000 to 600,000

METAL CONDUCTIVITY

	(Relative, annealed copper = 1.00)
ALUMINUM	.619
BISMUTH	.014
BRASS	.256
IRON	.179
LEAD	.078
NICKEL	.198
TUNGSTEN	.308

Plier Facts

HEAD STYLES

FLAT NOSE
 ROUND NOSE
 NEEDLE NOSE
 CHAIN NOSE
 DIAGONAL CUTTER
 END NIPPER

JOINTS





LAP
 BOX
 SCREW


Regular, or lap joint is easiest to make. May be of high quality if carefully and precisely made and smoothly polished.

Box joint is often preferred because it is long wearing. Does not develop looseness or wobble. Precision feel. Gives perfect jaw alignment.

Screw joint allows user to do "fussy" work. Allows easy, accurate reshaping. May be re-adjusted after period of wear.


FINISHES

POLISHED




A description for pliers which are buffed to a dull sheen after stamping and grinding. Polished pliers are not rust-proof, and should be kept lightly oiled.

BLUED



This process converts the tool steel surface to a deep blue, almost black, color. The finish is resistant to oxidation.

NICKEL-PLATED



A fine, protective finish for pliers. Attractive and highly resistant to oxidation. Available "dull" and "bright". The bright nickel-plate finish is often mirror-like in quality.

CHROME-PLATED

A secondary plating usually applied over a nickel plate. Attractive, bright, and extremely resistant to corrosion. Usually identified by its slight bluish cast.

PVC-COATED

Polyvinylchloride plastic coating applied to plier handles. Acts as a cushion grip to ease operator fatigue. Also protects plier handles against corrosion.

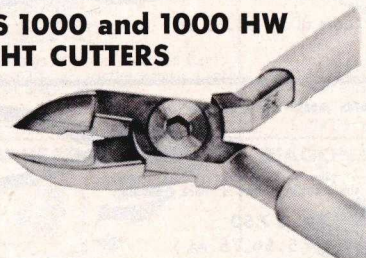
PLIERS

TOOL STEEL INSERTED-TIP CUTTERS



Proper cutting of wires is an increasing problem for engineers and technicians responsible for the manufacture of highly specialized electronic devices. Correct size, shape, and cutting capability of the wire cutting tool is very important in producing quality electronic assemblies. ETM tools feature tool steel inserted tips hardened to 64-66 R/C and then hand diamond honed. Joints are hand lapped and assembled with a precision screw. These fine ETM cutters cost considerably more than conventional cutters in the short run, but they do a superior job over a longer life span (lasting up to 10 times as long as ordinary cutters). All models have blue cushion handle grips and return springs. (Replacement springs Cat. No. 1211 sold in pairs for \$1.25.)

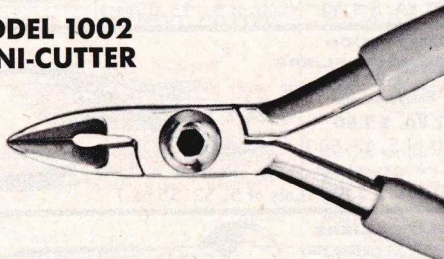
MODELS 1000 and 1000 HW STRAIGHT CUTTERS



An 18° straight cutter with backing ledges for extra strength. Model 1000 cuts nickel wire up to .032". Model 1000HW (hard wire) cuts tungsten and hard stainless steel up to .025". Overall length 4 1/4".

1000 \$23.50
1000HW 27.50

MODEL 1002 MINI-CUTTER



A straight angle mini-cutter for cutting very fine wire (up to .025" soft wire—.006" hard wire). Fine tips. Overall length 4 1/4".

1002 \$23.50

MODEL 1003 NEEDLE-TIP MINI-CUTTER



For cutting flat packs and other miniature wires and components. Miniature needle tips handle material up to .006 x .020". Overall length 4 1/4".

1003 \$23.50

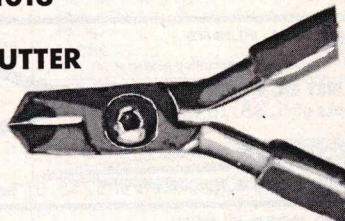
MODEL 1006 ANGLE CUTTER



A narrow-nose angle cutter (45°) handles soft wire up to .025" and hard wire up to .010". Overall length 4 1/4".

1006 \$27.50

MODEL 1013 ANGLED FLUSH CUTTER



Features a sharp point and narrow head. Used to remove components from component side of circuit board without injury to circuit. Handles .025" nickel wire. Overall length 4 1/2".

1013 \$36.00

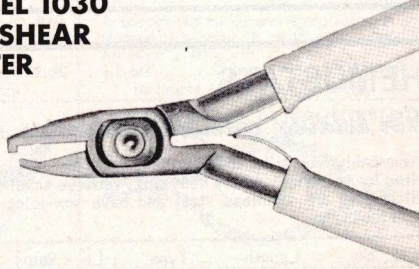
MODEL 1021 NEEDLE-TIP CUTTER



A popular miniature cutter designed to get into tight places and make burr-free cuts. Excellent for trimming flat-pack leads. Cuts nickel ribbon up to .006 x .020". Length 4 1/4".

1021 \$27.50

MODEL 1030 END SHEAR CUTTER



This new tool makes a perfectly square shear cut without transferring shock to the component lead. No flying wire. Cuts up to .032" nickel wire and leaves a .040" lead for soldering. Length 4 1/4".

1030 \$35.00

NOW YOU CAN CHARGE IT!



PLIERS

XCELITE®

The exceptional strength and utility of Xcelite pliers are the result of forged alloy steel construction, precision-machining, and scientific proportioning. Handles are designed to fit comfortably . . . provide maximum leverage without damaging hands or pliers. Cleanly milled and perfectly aligned jaws grip tightly

and surely. Hand-honed, mated cutting edges remain sharp under severe usage. Heads are brightly polished.

For extra working comfort, most models are available with permanent, plastic-coated "Cushion Grip" (CG) handles.

All models except 75C and 76C have plastic cushion-grip handles

DIAGONAL PLIERS

54CG — Midget 4" size. For close quarter work.

NET EA. \$ 5.35

(Lots of 5, \$4.85 ea.)

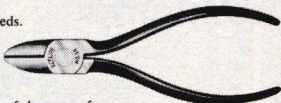


DIAGONAL PLIERS

55CG — 5" plier for most cutting needs.

NET EA. \$ 5.65

(Lots of 5, \$5.10 ea.)



67CG — 7" diagonal with plenty of leverage for heavy applications.

NET EA. \$ 6.15 (Lots of 5, \$5.55 ea.)

LONG NOSE PLIERS

51CG — 6" long nose, with side cutters.

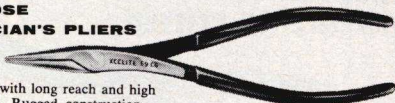
NET EA. \$ 5.95 (Lots of 5, \$5.35 ea.)



CHAIN NOSE ELECTRICIAN'S PLIERS

59CG — 8" plier with long reach and high leverage. Rugged construction.

NET EA. \$ 6.45 (Lots of 5, \$5.80 ea.)



SIDE CUTTING PLIERS

60CG — 6" size with serrated upper and lower jaw for gripping.

NET EA. \$ 6.05 (Lots of 5, \$5.45 ea.)

68CG — 8" plier same as above with grip and leverage for cutting heavy wire.

NET EA. \$ 7.25 (Lots of 5, \$6.50 ea.)

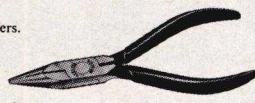


LONG NOSE PLIERS

41CG — Midget 4" without side cutters.

NET EA. \$ 5.15

(Lots of 5, \$4.65 ea.)



RADIO AND TV PLIER

58CG — 6" plier with extreme tip for gripping, sharp cutting edges 1/4" back from tip.

NET EA. \$ 7.50

(Lots of 5, \$6.75 ea.)



NEEDLE NOSE PLIERS

56CG — 6" size. Long slim jaws permit entry where regular long nose plier won't work.

NET EA. \$ 5.65 (Lots of 5, \$5.05 ea.)



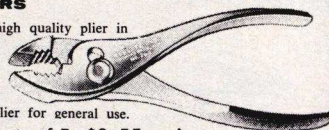
COMBINATION SLIP JOINT PLIERS

75C — 5" chrome-plated, high quality plier in handy small size.

NET EA. \$ 2.80
(Lots of 5, \$2.50)

76C — 6" chrome-plated plier for general use.

NET EA. \$ 2.85 (Lots of 5, \$2.55 ea.)



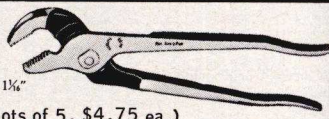
UTILITY PLIERS

53CG — 6" all-purpose plier with 5-position forged rib lock design and serrated jaws. Maximum opening 1 1/4"

NET EA. \$ 5.25 (Lots of 5, \$4.75 ea.)

63CG — 10" forged rib lock design. Adjusts to 4 positions. Maximum opening 1 1/2"

NET EA. \$ 7.15 (Lots of 5, \$6.45 ea.)

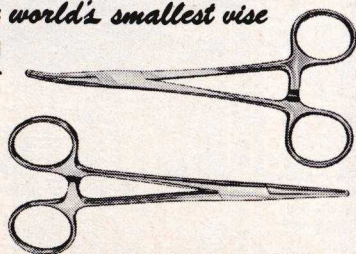


HEMOSTATS

For holding, clamping, soldering, heat sinking . . . the world's smallest vise

Remarkably versatile tools with unusual holding qualities. Clamp tightly. Hold wires for soldering, act as heat sink, retrieve small parts from hard-to-reach places. All models are stainless steel and have box-joint construction and multi-position snap locks.

Cat. No.	Length	Type	Lock stops	Net each	Lots of 10
T-25	5"	Straight	3	\$ 4.95	\$4.45
T-35	5"	Curved	3	5.65	5.05
T-20	6"	Straight	3	5.95	5.35
T-30	6"	Curved	3	7.50	6.75











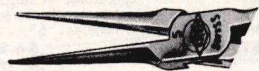

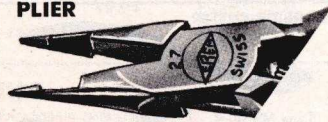
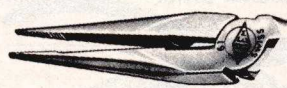



TEL VAC



FINE ELECTRONIC PLIERS

EREM quality begins with quality forgings. Basic materials used are fine grain, high carbon steel or chrome vanadium alloy steel. Forgings are carefully machined, then heat treated and hardened using the best modern equipment. Because of this basic quality approach, EREM tools give long service life on electronic assembly stations. They are hand fitted, hand finished, and individually inspected. Each pair of pliers opens and closes easily so that the operator will experience a

minimum of hand fatigue. Jaws of needle and chain nose pliers are always parallel and meet perfectly. Edges of cutting pliers are precision honed to cut cleanly and accurately. Chrome vanadium steel provides double life over ordinary steel, with blades tested for over 36,000 perfect cuts on .020" steel wire. All models have turquoise cushion hand grips. EREM pliers are a joy to use and a pleasure to look at.

DIAGONAL CUTTER  Tapered jaw design. Chrome vanadium steel. Flush cut for #20 and smaller wires. Leaf spring. Length 4 3/4". Nose 1/4". 86EHL \$9.65 (In lots of 12-59, \$7.61 each)	FINE DIAGONAL CUTTER  Same as 97EHL, except cut is full flush. For #24 or smaller soft wires. Leaf spring. 99EHL \$9.75 (In lots of 12-59, \$7.73 each)	SERRATED LONG CHAIN-NOSE  Same as 11HL, except jaws have fine serrations for firmly gripping wire. Leaf spring. 11DHL \$7.95 (In lots of 12-59, \$6.26 each)
RELIEVED-HEAD CUTTER  Same as 86EHL above, except jaw is cut away on reverse side for use in very tight spaces. For #20 or smaller wire. Leaf spring. 84EHL \$9.85 (In lots of 12-59, \$7.76 each)	DIAGONAL CUTTER  General purpose cutter for use in electronics. Semi-flush cut. Leaf spring. Length 6". Nose 3/4". 96-6HL \$10.50 (In lots of 12-59, \$8.29 each)	LONG NEEDLE-NOSE  For use where space and accessibility are limited. Smooth jaws with radius edges. Leaf spring. Length 6". Nose 2 3/4". 14-6HL \$8.85 (In lots of 12-59, \$7.01 each)
MIDGET DIAGONAL CUTTER  Tapered jaw midget diagonal cutter. Chrome vanadium steel. Full flush cut for #22 and smaller wires. Leaf spring. Length 4". Nose 1/4". 95EHL \$9.30 (In lots of 12-59, \$7.35 each)	TIP-O-DYKE  Cuts at perfect angle for maximum visibility on tiny modules. Chrome vanadium steel. Cuts .03" nickel ribbon flush. Leaf spring. Length 4". Cut length 1/4". 90EHL \$16.85 (In lots of 12-59, \$13.31 each)	SERRATED LONG NEEDLE-NOSE  Similar to 14-6HL above, but has serrated tip for gripping. Leaf spring. Length 5 1/2". Nose 1 1/4". 5HL \$8.50 (In lots of 12-59, \$6.71 each)
RELIEVED-HEAD MIDGET CUTTER  Same as 95EHL above, except jaw is cut away on reverse side for use in very tight spaces. For #22 or smaller wires. Leaf spring. 95AEHL \$9.85 (In lots of 12-59, \$7.76 each)	ELECTRONIC COMBINATION PLIER  Serrated tip at end plus side cutter for #20 and smaller wires. Popular for electronic assembly. Length 5 1/2". Nose 1 1/2". 27H \$11.30 (In lots of 12-59, \$8.93 each)	LONG-NOSE WITH CUTTER  A strong plier for general electrical maintenance. Serrated tip with side cutter. Length 6". Nose 2 1/2". 61-6H \$10.40 (In lots of 12-59, \$8.21 each)
FINE DIAGONAL CUTTER  Swedish head design for greater strength. Chrome vanadium steel. Semi-flush cut for #22 or smaller soft wires. Leaf spring. Length 4". Nose 1/4". 97EHL \$9.30 (In lots of 12-59, \$7.35 each)	LONG CHAIN-NOSE  Narrow-chain-nose pliers for precision forming and bending. Smooth jaw with radius edges. Leaf spring. Length 4 3/4". Nose 1 1/4". 11HL \$7.95 (In lots of 12-59, \$6.26 each)	DOUBLE-END PLIER CUTTER  Eliminates need to lay down and pick up separate tools. Combines 97EHL and 11HL at left, but has coil springs. Length 7 1/2". 48EHS \$23.25 (In lots of 12-59, \$18.38 each)

JENSEN PAYS THE SHIPPING CHARGES!

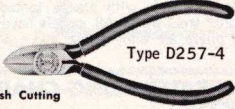
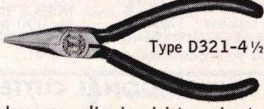
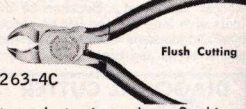
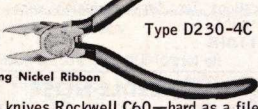
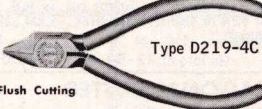
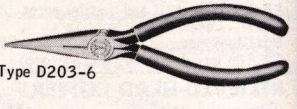
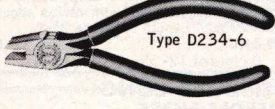
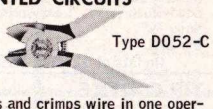
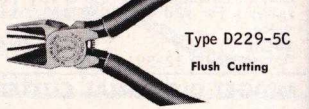


PLIERS

KLEIN PLIERS

All Klein Pliers are drop forged from high-grade alloy tool steel made specifically to analysis. Every plier is individually fitted, tempered, adjusted and tested. The test in every case is far in excess of any pressure that could be applied by hand. Klein Pliers have long been recognized as the standard by which other pliers are judged. This why Kleins are preferred everywhere by men who know good tools.



OBLIQUE CUTTING PLIER  Type D257-4 Semi-Flush Cutting Diagonal cutter for electronic work in the familiar Swedish pattern. Semi-flush cut. With red plastic handles. Overall length 4-3/16". Cut length 1/2". CAT. NO. 37B432 \$4.30	LONG NOSE PLIER  Type D321-4 1/2 Popular long-nose plier in miniature size to match cutter at left. Used for bending and twisting wires and component leads. With yellow plastic handles. Overall length 4-1/2". Nose length 1". CAT. NO. 37B439 \$3.90	MATRIX CUTTER  Type D263-4C Flush Cutting For miniature electronic work. Combines advantages of end cutter and diagonal. Extra high hardness cutting blade for use on nickel ribbon. With coil spring and red plastic handles. Cut length 3/16". Overall 4". CAT. NO. 37B441 \$8.76
HIGH HARDNESS PLIER  Type D230-4C For Cutting Nickel Ribbon Cutting knives Rockwell C60—hard as a file. For cutting nickel ribbon. Nose only 1/16" at tip, for use in confined spaces. With coil spring and red plastic-dipped handles. Cut length 3/16". Overall length 4-3/16". CAT. NO. 37B443 \$7.15	OBLIQUE CUTTING PLIER  Type D219-4C Semi-Flush Cutting Semi-flush cutting diagonal with taper jaw. Relieved in back to allow entry to confined spaces. With coil spring and red plastic handles. Cut length 1/2". Overall 4-3/4". CAT. NO. 37B447 \$5.43	LONG NOSE SIDE CUTTING PLIER  Type D203-6 Long-nose plier with convenient side cutter. Popular with kit builders and electricians. Yellow plastic-dipped handles. Overall length 6 1/2". Nose length 1-1/2". Cutter 1/2". CAT. NO. 37B452 \$4.90
CONNECTOR CRIMPING PLIER  Type D234-6 An extremely useful special-purpose plier for seating UG and UR connectors. A stop behind the cutout prevents damage to the connector. Yellow plastic handles. 6". CAT. NO. 37B455 \$6.27	OBLIQUE CUTTER FOR PRINTED CIRCUITS  Type D052-C This model cuts and crimps wire in one operation. Crimping holds wire in place on circuit board to permit efficient dip soldering. Coil spring and red plastic dipped handles. Overall length 5-1/8". Cut length 7/16". CAT. NO. 37B456 \$5.98	WIRE GRIPPING OBLIQUE CUTTER  Type D229-5C Flush Cutting Steel springs between jaws hold clipped ends of wires. With coil spring and red plastic-dipped handles. Overall length 5". Cut length 11/16". Taper-jaw design. CAT. NO. 37B458 \$ 8.41

In lots of 6 or more of one kind, deduct 10% from Klein plier prices shown above.

DIAMOND PLIERS

Top-of-the-line pliers from Diamond Tool and Horseshoe. Each plier has a specially hardened Copaloy alloy rivet to eliminate steel-against-steel friction. Forgings are of a special analysis steel for extreme toughness and rigidity. All models have green cushion grips and all have return springs (except 66B169).

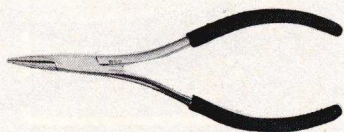


DIAGONAL CUTTER  Type MS54 Miniature diagonal cutter with famous Copaloy joint for long life. Swedish pattern. Semi-flush 3/4" cut. Length 4". CAT. NO. 66B154 \$ 4.80	CARBIDE CUTTER  Type MS54-4 Similar to the diagonal cutter at left, but with heavy duty carbide steel blades. Flush 3/4" cut. Length 4". CAT. NO. 66B156 \$ 19.95	CURVED LONG-NOSE  Type CN55 For reaching into confined spaces. End of smooth jaws bend 45°. Bent segment 1/2" long. Famous Copaloy joint. Length 5". CAT. NO. 66B158 \$ 5.50
SHORT-NOSE DIAGONAL  Type MS54-6 Same as above, but nose is made very short and rounded for high leverage. This model provides flush 1/4" cut. Length 4". CAT. NO. 66B155 \$ 5.95	NEEDLE-NOSE  Type NN55-1 Fine wire-bending long-reach pliers for fine electronic work. Smooth jaws with curved edges will not nick wires. Length 5". CAT. NO. 66B157 \$ 7.10	CURVED NEEDLE-NOSE  Type CN56P A larger (6" long) curved tip model popular in repair and assembly work. Serrated tips. Bent segment 1 1/4" long. This model has regular joint and no spring. CAT. NO. 66B169 \$ 5.30

In lots of 5 or more of one kind, deduct 10% from Diamond plier prices shown above.

PLIERS

MICRO-MINIATURE "SLENDLINE" PLIERS



Extremely small plier points give surgeon-like control to the user of these new micro-miniature pliers. Ultra slim design (only $\frac{3}{16}$ x $\frac{1}{8}$ " at hinge pin) allows use of these tools in the smallest spaces. Curved comfort-designed handles. Box-joint construction. Smooth jaws. All stainless steel with plastic-coated handles. Overall length 5".

65B703	CHAIN NOSE "SLENDLINE" PLIER	
65B704	FLAT NOSE "SLENDLINE" PLIER	
65B705	NEEDLE NOSE "SLENDLINE" PLIER	
65B706	OFFSET FLAT NOSE "SLENDLINE" PLIER	

NET EA. \$6.60

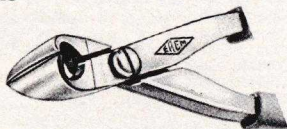
NET EA. \$6.60

NET EA. \$6.60

NET EA. \$6.60

(All models above in lots of 12, \$4.95 each)

FINE WATCHMAKERS NIPPERS



Lightweight nippers for exacting work in watchmaking and electronics. Used for cutting hairsprings and fine wires on semiconductors, midjet lamps, etc. Flush cutting (no peaks). Adjustable rivet changes jaw pressure. For cutting soft wires #24 or smaller and small nickel ribbon. Length 4 $\frac{3}{4}$ ". Handles have green cushion grips. 65B688 has angled head. 65B689 has straight (perpendicular) head.

65B688 (OBLIQUE HEAD)	\$14.95
65B689 (STRAIGHT HEAD)	15.95

(In lots of 12, \$11.21 and \$11.96 each)

BERNARD PARALLEL-ACTION PLIERS

Favorites of jewelers and watchmakers. Flat jaws remain parallel to each other as plier is opened or closed. Stock being held may extend through handle, making tool a form of miniature vise. All models heat treated alloy steel. Nickel plated and polished.

LIGHT PATTERN

This small model is 5" long. Jaws are smooth so work will not be marked. No cutter on this light pattern model.

31B601 **\$5.75**

HEAVY PATTERN

This model is 6 $\frac{1}{2}$ " long for handling heavier stock. Jaws are serrated for positive gripping action. No cutter on this model.

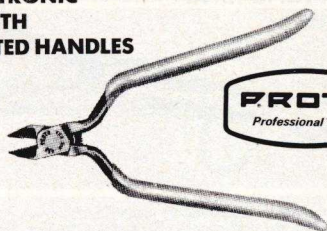
31B603 **\$5.85**

HEAVY PATTERN WITH CUTTER

Same heavy pattern as above, but slightly shorter (5 $\frac{1}{2}$ ") and jaws are smooth (no serrations). High leverage cutter for wires, rod, or flat stock.

31B605 **\$7.40**

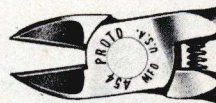
FINE ELECTRONIC PLIERS WITH PALM-FITTED HANDLES



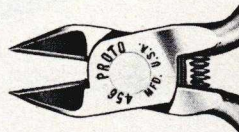
PROTO
Professional Tools

The result of 4 $\frac{1}{2}$ years of engineering research. Designed to provide maximum operator comfort, and thus maximum work output. Drop forged from high-carbon alloy steel—buffed and polished. Hot forged pivotal rivet. Low-drag action coil springs. Turquoise cushion grips. Highly recommended for electronic production lines.

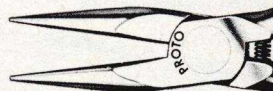
NO. 454
STANDARD JAW
LENGTH 5"
SEMI-FLUSH CUT
\$6.45



NO. 456
TAPER JAW
LENGTH 5"
FLUSH CUT
\$7.35

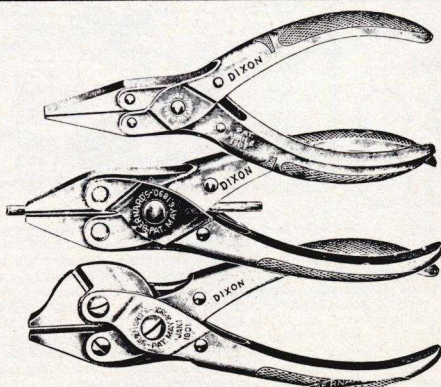
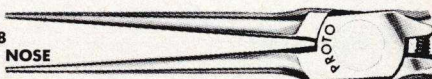


NO. 475
CHAIN NOSE
LENGTH 5 $\frac{3}{4}$ "
NO SERRATIONS
(RADIUS EDGES) \$4.95



NO. 478
NEEDLE NOSE

LENGTH 6 $\frac{3}{4}$ "
NO SERRATIONS (RADIUS EDGES)
\$4.95



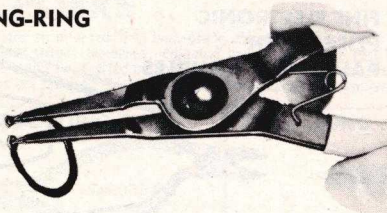
NOW YOU CAN CHARGE IT!



PLIERS

RETAINING-RING PLIERS

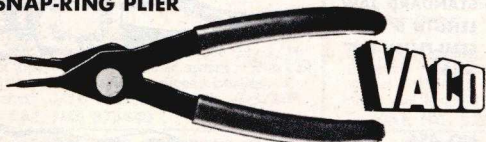
MILBAR



Deluxe retaining-ring pliers for industrial and service use. Models for internal and external rings. Both styles feature induction-hardened tips to grip rings securely with easy release after application or removal. Internal-type plier takes rings from .375 to 1" housing dia. and closes when the handle is squeezed. External-type plier takes rings from .25 to .875" shaft dia. and opens when the handle is squeezed. Both models have return springs and vinyl cushion grips.

71B310 INTERNAL STYLE \$3.95
71B320 EXTERNAL STYLE 3.95

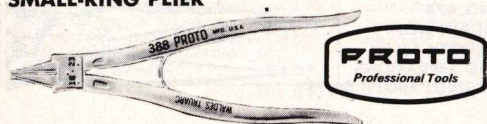
CONVERTIBLE SNAP-RING PLIER



A moveable pivot allows this unusual tool to be converted from internal to external rings. Saves space in tool boxes. Length 6". Other specifications approximately the same as individual tools listed above.

36B495 \$5.45

SMALL-RING PLIER

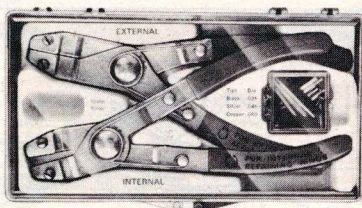


An external retaining ring plier for use with the smallest rings (shaft diameters $\frac{3}{16}$ to $\frac{1}{4}$ " —ring types -18 through -23. Length 5 $\frac{1}{4}$ ". No cushion grips on this model.

388 \$ 3.95

INTERCHANGEABLE-TIP PLIER SET

for use on
any style
rings

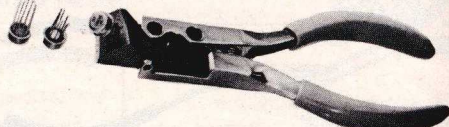


This versatile plier set replaces dozens of individual retaining-ring pliers. Use it to install or replace a wide range of internal and external rings on shafts from $\frac{3}{16}$ to 1 $\frac{1}{2}$ ". The kit includes two plier handles; one which opens when the handle is squeezed (for external rings), and one which closes when the handle is squeezed (for internal rings). Eight pairs of interchangeable tips are furnished in straight, 45°, and 90° configurations, and in diameters of .035, .045, and .060". The pliers are carefully manufactured from heat-treated steel. Handles are easy-on-the-hand and have long-wearing oil resistant vinyl coverings. The tips are heat treated to insure maximum toughness and wear. The complete set is furnished in a convenient plastic box.

71B444 \$9.65

10-LEAD STAIR-CUT TOOL

ETM



The ETM 10-lead stair-cut tool eliminates hand stepped trimming of IC and transistor devices in TO-5 packages. This new tool is a quality long life shear cutter that cuts all 10 leads of your transistor device at one time in a uniform helix stair pattern. The assembly operator places the component in the tool by matching the tabbed lead with a tool index mark and makes one cut which produces the stepped leads. The longest lead is then inserted into the p.c. board and the other seven guide easily into place. Eliminates linear pull and shock to components. Length 5 $\frac{1}{2}$ ". Cutting head $\frac{3}{4}$ " square. Cutting pattern $\frac{1}{2}$ " steps with longest lead $\frac{3}{4}$ " and shortest $\frac{3}{16}$ ". Pin circle diameter .230". Lead holes .050". Shear holes .030". Famous ETM quality. Cushion grips.

4031 \$ 57.50

IGNITION PLIERS

PROTO
Professional Tools



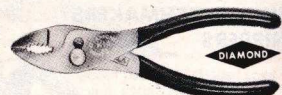
Tiny slip-joint pliers for use on small nuts and bolts in restricted spaces. Type 3204 is 4 $\frac{1}{2}$ " long and opens to $\frac{1}{4}$ ". Type 3241 is 5" long and has Power-Track® joint which opens to maximum of 1".

3204 \$ 2.40

3241 \$ 4.05

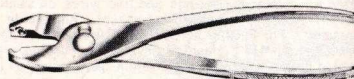
MINI-GAS PLIERS

A mini-size version of the popular "gas pliers" pattern. Finest tool steel, chrome plated, with green cushion grips. Length 4".



K-14P \$ 2.10

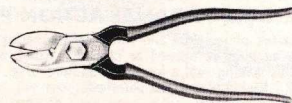
HOSE-CLAMP PLIERS



An essential tool. Used on hose spring tension clamps on vehicles, washing machines, etc. Alloy steel. Slip-joint design. Length 7 $\frac{3}{4}$ ".

252 \$4.65

BX-CABLE CUTTER



A new Klein tool for electricians. Cuts BX or cables easily and quickly. High leverage. Has wire stripping notches and red plastic handles. Length 7".

37B588 \$ 4.95

PULLER TOOL



The most satisfactory pulling tool made. Grips wire or fish tape for pulling through conduit, but will not damage the wire or tape. Easy-grip handles. Made of steel.

37B590 \$ 5.50

TWEEZERS

Tweezers are typically operated with the thumb and forefinger and are used to pull, pick up, or position tiny objects. Tweezers may be either normally open or closed.

DICTIONARY DEFINITION:

A small pair of pincers; a tool for gripping having two limbs.

IN OTHER LANGUAGES:

German
French
Spanish
Russian
Italian

Pinzette
Petites Pincers
Pinzas
Пинцет
Pinzette

ANTI-CRUSH

Tweezers with one arm recessed so that excessive finger pressure will bend the arm and not be passed to the work.

ANTI-WICKING

A soldering tweezer which clamps around stranded wire to prevent the flow of solder (wicking) beyond the tweezer.

ASSEMBLY

General-purpose tweezers used in a wide variety of industrial operations.

CARBON STEEL

A very hard tweezer material. Strong, but susceptible to corrosion.

CARPENTER 20

A tweezer alloy which is non-magnetic and resists acids.

CLAMPING

Normally-closed tweezers which can be used as a small vise or for heat sinking.

CLOCK

Extra-long utility tweezer used by clock-makers.

CUTTING

Refers to tweezers having cutting edges for use on very fine wires.

DIAMOND

A three-fingered device used to hold gems, ball-bearings, or other small parts.

DICE

Refers to tweezers with large surfaces for holding semiconductor components.

DUMONT-STYLE

A series of fine tweezer patterns originally developed for watchmaking in Switzerland.

DUMOXEL

A trade name of the Dumont Company referring to their non-magnetic stainless tweezer alloy.

FINGER

Tiny tweezers strapped to the end of one finger and manipulated with that finger and the thumb.

HAIRSPRING

A tweezer with tiny slots in the jaws to hold watch hairsprings; or a cutting tweezer designed to cut hairsprings.

INDUSTRIAL

See assembly.

INOX

A trade name of the Dumont Company referring to their stainless steel tweezer alloy.

LOCKING

Tweezers that can be held closed by sliding a small button into position.

NICKEL-PLATED

Carbon steel tweezers plated to resist corrosion.

NICKEL-SILVER

Tweezers alloy which is non-magnetic and relatively non-scratching.

NON-MAGNETIC

A tweezer alloy which cannot be magnetized.

NON-SPARKING

Refers to tweezers made of brass or a copper alloy.

OFFSET

Tweezer ends are angled slightly for convenience in handling.

OBLONG

Refers to jaws which are flat, rounded, and have a large gripping surface.

PIN

Tweezers with a small pin in one arm and a hole in the other, designed to maintain point alignment.

PLASTIC

Tweezers that are non-conductive and non-magnetic.

PLEEZER

Trade name of EREM Corp. for heavy-duty tweezers which have many of the properties of pliers.

POINTED

Ends of tweezer arms come to a fine point.

POSTAGE STAMP

See oblong.

REVERSE ACTION

See clamping.

ROUND

Ends of tweezer arms are rounded or blunted.

SERRATED

Having tips with tiny grooves or cross-hatching to enhance gripping qualities.

SOLDERING

See clamping.

STAINLESS

A tweezer alloy resistant to corrosion but not quite as hard as carbon steel.

STUBBY

Short tweezers designed to be gripped near the points for maximum leverage.

TITANIUM

A non-magnetic tweezer alloy.

VACUUM

Refers to vacuum parts-handling systems which do the work of tweezers.

WAFER

Refers to tweezers with large surfaces for holding semiconductor components.

WIRE

Tweezers formed out of heavy-gauge wire, as opposed to forgings.

TWEEZERS

precision

DUMONT TWEEZERS FROM SWITZERLAND

The finest tweezers you can buy! Genuine Dumont tweezers (not an imitation) are forged from the finest steels, and then machined to a satin finish. Laborious hand operations shape and finish the points. Used in watchmaking, microscopy, white room operations, semiconductor and micro-electronic production. Offered in three materials (described below). Demand the very finest!

ORIGINAL
(DUMONT)
GENUINE

- 1- General-purpose tweezer with strong blades and fine points. Overall length 4-3/4".



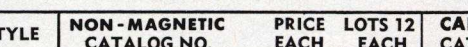
- 3- For handling miniature parts. Tapered shanks with beveled edges. Fine points. Overall length 4-5/8".



- 3C- Shorter version of pattern 3 above. Fine points. Overall length 4-1/4".



- 5- For handling microscopic parts. Extra-honed, extra-fine needle points. More visibility. Length 4-1/4".



- 7- For handling micro-miniature parts with hand resting on bench. Very sharp points. Length 4-1/2".



- 15A- An oblique angle tweezer for flush-cutting fine wires. Gives clean, close cuts. Length 4-1/2".



- 00- A strong utility tweezer with thick blades and flat edges. Honed points with blunt tips. Length 4-1/2".



STYLE	NON-MAGNETIC CATALOG NO.	PRICE EACH	LOTS 12 EACH	CARBON CAT. NO.	PRICE EACH	LOTS 12 EACH	STAINLESS CAT. NO.	PRICE EACH	LOTS 12 EACH
1	18B205	\$ 7.00	\$ 6.30	18B005	\$6.25	\$5.65	18B105	\$ 6.85	\$ 6.15
3	18B206	7.40	6.65	18B006	5.84	4.67	18B106	6.90	6.20
3C	18B208	7.40	6.65	18B008	5.84	4.67	18B108	6.90	6.20
5	18B210	9.80	8.85	18B010	6.86	5.49	18B110	7.35	6.60
7	18B212	10.40	9.35	18B012	8.95	7.25	18B112	10.20	9.15
15A				18B014	19.85	17.95			
00	18B218	7.65	6.85	18B018	6.25	5.65	18B118	7.25	6.50

Carbon-steel tweezers have the hardest points and will give longest life, but they are susceptible to corrosion. Stainless models are corrosion resistant, but not quite as hard as carbon-steel models. Non-magnetic models are also corrosion resistant, but the points are not as hard as regular stainless or carbon-steel models.

VIGOR® DUMONT-STYLE TWEEZERS

Fine tweezers from Switzerland, packaged and distributed by VIGOR. Carefully hand made in the same patterns and traditions as the genuine Dumont tweezers described above. Custom hand finished, yet priced almost as low as mass-production tweezers. Offered in non-magnetic steel and regular stainless steel.

STYLE	NON-MAG. CAT. NO.	PRICE EACH	LOTS 12 EACH	STAINLESS CAT. NO.	PRICE EACH	LOTS 12 EACH
1	21B405	\$ 5.70	\$ 5.10	21B905	\$4.95	\$4.45
3	21B406	6.15	5.50	21B906	5.25	4.70
3C	21B408	6.15	5.50	21B908	5.25	4.70
5	21B410	7.05	6.35	21B910	6.25	5.60
7	21B412	7.90	7.10	21B912	6.95	6.25
00	21B418	6.40	5.75	21B918	5.60	5.05

TITANIUM TWEEZERS

VIGOR Titanium tweezers are non-ferrous and non-magnetic. Used in precision handling work where parts must be protected against magnetic fields, or where parts have a tendency to be attracted to tweezers. Titanium tweezers are harder than the usual rustless/non-magnetic alloys and have excellent corrosion resistance. Furnished in four popular patterns.



Cat. No.	Vigor Type	Pattern	Description	Net Each
21B100	TW-803	3	Titanium non-magnetic tweezer	\$12.20
21B104	TW-803C	3C	Titanium non-magnetic tweezer	12.20
21B106	TW-805	5	Titanium non-magnetic tweezer	13.25
21B108	TW-807	7	Titanium non-magnetic tweezer	13.80

VIGOR®

DUMONT MICROSCOPIC WIRE-CUTTING TWEezer

Cutting tips at extreme end of precision tweezers for use on very fine copper or gold wires up to #40 and smaller. Length 4 1/2". Carbon steel.

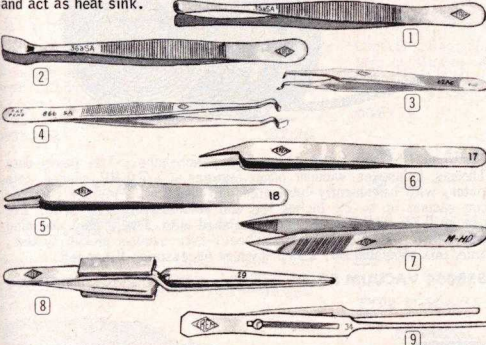


18B401 \$ 9.85

SPECIAL PURPOSE TWEEZERS



World-famous EREM tweezers used in research and manufacturing. Finest quality steels finished to perfection. Semiconductor tweezers have smooth surfaces, available with and without 1 1/2 mil teflon coating. Wafer-handling tweezers used in integrated circuit manufacture. "Pleezers" are strong wire-forming tools, used where tweezers are too small and pliers are too large. Stubby tweezer provides good leverage for gripping heavy objects. Soldering tweezers hold work in position and act as heat sink.



Cat. No.	Description	Illustration	Length	Price 1-11	12-up
65B710	Semiconductor, straight, stainless	1	4 3/4"	\$ 5.95	\$4.46
65B720	Semiconductor, angled, stainless	2	4 3/4"	5.95	4.46
65B730	Semiconductor, straight, stainless, teflon	3	4 3/4"	7.90	5.92
65B740	Semiconductor, angled, stainless, teflon	2	4 3/4"	7.90	5.92
65B742	Wafer handling, small, non-magnetic	3	4 3/4"	7.40	5.55
65B743	Wafer handling, large, non-magnetic	4	4 1/2"	12.95	9.71
65B751	"Pleezers", flat nose, carbon steel	5	4 1/2"	8.40	6.30
65B752	"Pleezers", chain nose, carbon steel	6	4 1/2"	9.95	7.46
65B754	Stubby, short tweezer, serrations	7	3 1/4"	4.95	3.71
65B757	Soldering, reverse action, heavy-duty	8	6"	6.75	5.06
65B758	Soldering, locking type, flat tips	9	6"	3.90	2.93

WIRE STRIPPER TWEEZER

A top flush-cutting tweezer. Used for stripping and cutting fine magnet wires. Carbon steel. Nickel plated. 4 1/2" long. Made in Switzerland.

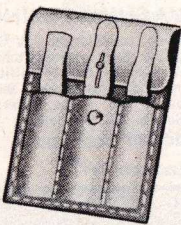
NO. 10-D \$5.85 (In lots of 10, \$5.25 each)



SERVICE TWEEZER KIT

For shop or lab. Use to pick up and examine small parts, start screws and nuts, get into hard-to-reach spots, fasten springs. Kit contains one 6 1/2" blunt serrated-pointed self closing tweezer, one 6 1/2" smooth-pointed tweezer, and one 4 1/2" sharp-pointed tweezer. All are nickel plated forged steel. Kit comes in plastic pocket pouch.

NO. 7950 \$4.15



ALL PLASTIC TWEEZERS AND PLIERS

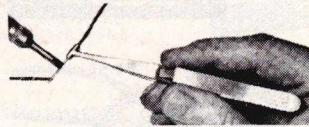


DELTRIN plastic tweezers and pliers are non-magnetic, non-conductive, non-rusting, and unaffected by alcohol, acetone, and other solvents. Can be sterilized. Fluorocarbon (CTFE) model 1A is, in addition, unaffected by inorganic acids, oxidizing agents, and is radiation resistant. Tweezers are 4 1/2" long. Pliers are 6" long. Use these tools for picking up wafers, ceramics, lenses, and other parts that might be damaged by metal.

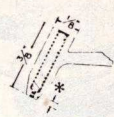
Cat. No.	Description	End Style	Material	Weight	Net Each	Lots 10	Lots 100
300	Tweezers	flat, narrow	Delrin	light	\$1.10	\$5.99	\$.85
03	Tweezers	flat, extra wide	Delrin	medium	1.10	.99	.85
1A	Tweezers	flat, narrow	Fluorocarbon	heavy	2.65	2.35	2.10
500	Tweezers	pointed	Delrin	heavy	1.10	.99	.85
P1	Pliers	serrated jaws	Delrin	heavy	2.00	1.80	1.60
P2	Pliers	flat jaws	Nylon	heavy	2.20	1.98	1.75

ANTI-WICKING TWEEZERS

Prevent solder from creeping under insulation.



Hold insulation in place.



BULLET HEAD prevents side slippage and gives perfect conductor contact.

Forged of solid, non-fatiguing beryllium copper alloy. Box joint prevents side slippage. Provides complete, positive conductor contact. Delivers maximum thermal conductivity. Checks solder flow at correct inspection distance from insulation.*

*NASA soldering specifications determine whether conductor-contact area is .0625, .0469 or .0313 inches in length for all sizes available (See MSC-PROC-158B Section e-2).

When ordering, specify AWG No. 18, 20, 22, 24, 26, 28, or 30.

CAT. NO. AW (Specify wire size). \$ 10.50

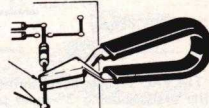


EREM new style anti-wicking tweezer meets NASA specifications. Positive grip—holds wires during soldering. Positive contact gives heat dissipating action. Each tool marked with wire gauge. Stainless steel—resists solder. Overall length 2 3/4". When ordering, specify AWG No. 16, 18, 20, 22, 24, 26, 28, or 30.

CAT. NO. 77 \$3.95

HEAT SINKS

HUNTER Heat Sinks for protecting delicate, heat-sensitive components. Dissipate the heat instantly. Three models, all with plastic coated handles.



NO. 51E \$ 1.17

NO. 51F 1.01

NO. 51G64

10 or more — deduct 10% from net prices shown above.

HOLDING TWEEZERS

Inexpensive reverse-action tweezers for heat sink and holding use. HUNTER CC-51 is nickel-plated steel, pointed, 4 inches long. CLAUSSE HS-5 is beryllium-copper alloy, 5" long, with large-surface oblong end for maximum heat transfer.

CAT. NO. CC-51 \$ 1.00

CAT. NO. HS-5 4.55



21B002 A strong, low-priced Boley-style tweezer with fine points. Carbon steel. Widely used in industry for a variety of jobs. Net each, **\$ 2.40**

X-acto

256 Tiny X-ACTO heat sink. Clamping, tweezer type. Nickel plated. 2 1/4" long. Package of 12, Net each, **\$ 2.40**



HK-6A Plastic tool set. Includes one each of the six tools described at left. Net per set, **\$8.65**

NOW YOU CAN CHARGE IT!

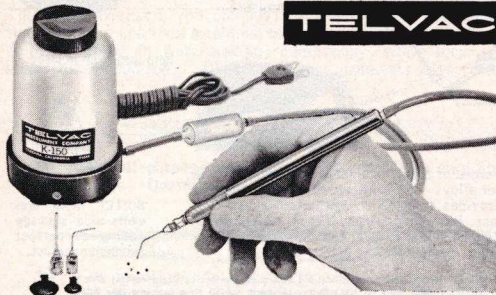


TWEEZERS

vacuum

COMPACT PARTS-HANDLING SYSTEM

TEL VAC



SPECIFICATIONS

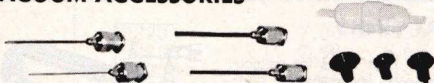
Vacuum	14 in. Hg.
Air flow	125 cu. in./min.
Power consumption	2 W.
Voltage	115 A.C.
Needle tips	.006" i.d.
	.0095" i.d.
	.0155" i.d.
	.047" i.d.
Vacuum cups	.5" dia.
	.25" dia.

The TELVAC K-150 parts-handling system positively and precisely lifts parts varying in size from the microscopic (as small as .010") to those weighing several ounces (lenses, covers, gaskets, laboratory specimens). Parts are handled without risk of damage or contamination. Defects caused by pinching, scratching, or maring are eliminated. Critical surfaces are fully protected. Production is speeded as parts are handled faster and with greater accuracy. The complete system consists of a penicil-like probe (vacuum is turned "on" and "off" with the forefinger), an assortment of needle tips to match the work, vacuum cups for heavier parts, a vacuum-line filter, and a compact vacuum generator.

Complete with all components described above.

K-150 \$39.50

VACUUM ACCESSORIES



All TELVAC vacuum accessories fit K-150 system above as well as similar systems using 30°-taper probes and needle tips. Cups fit #16 needle.

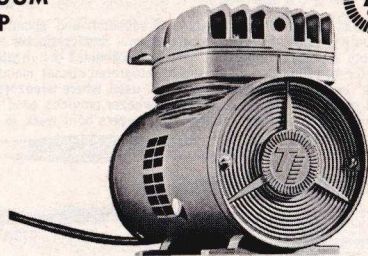
Cat. No.	Description	Net ea.	Cat. No.	Description	Net ea.
1505	Vacuum generator	\$26.00	1550	Needle, .006" i.d., #30	.49
1575	Pencil probe	6.95	1555	Needle, .0095" i.d., #25	.49
1510	Tubing, 4' length	2.00	1560	Needle, .0155" i.d., #22	.49
1599	Filter	.90	1562	Needle, .023" i.d., #20	.49
1580	Neoprene cup, 0.5"	.90	1564	Needle, .033" i.d., #18	.49
1585	Neoprene cup, 0.25"	.90	1565	Needle, .047" i.d., #16	.49
1587	Neoprene cup, 0.18"	.90	1568	Needle, .085" i.d., #12	.69

VACUUM ACCESSORIES KIT

A 9-piece set of vacuum pickup accessories for use on any vacuum pump, shop vacuum line, or transducer. Includes 1575 probe, 1510 tubing, 1599 filter, 1550-1555-1560-1565 needles, and 1580-1585 cups.

1595 VACUUM ACCESSORIES KIT \$ 11.75

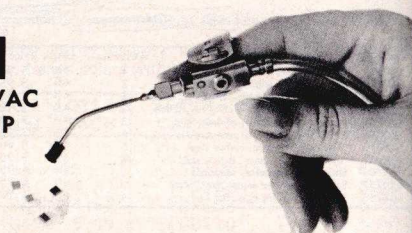
HEAVY DUTY VACUUM PUMP



For long life and maintenance-free performance. The heavy-duty Thomas Industries vacuum pump features a 1/10 HP shaded pole motor, with permanently-lubricated ball bearings. Provides continuous vacuum up to 22 inches Hg. and volume up to 1.3 CFM. For use on 115 VAC 60 cycles. Furnished with 3-wire cord and plug and on-off switch. To use as heavy-duty vacuum pickup system, order this pump and No. 1595 Vacuum Accessories Kit at left.

55B064 VACUUM PUMP \$84.00

DELI-VAC PICKUP TOOL



The DELI-VAC pickup probe relieves operator fatigue. Ideal for semiconductor and IC assembly where long periods of small component handling are necessary. Attaches comfortably to the finger by means of an adjustable Velcro band. Vacuum is created by covering a control hole with the thumb. Use with needle tips and other accessories at left.

122 DELI-VAC PICKUP \$ 11.75

Replacement Velcro Straps Cat. No. 2014 1.00

VACUUM TUBING

Clear, unreinforced P.V.C. tubing for use in vacuum systems. The inside diameter of this tubing is 1/8" and the outside diameter 1/4". Working pressure capability at room temperature is 68 p.s.i. It is non-toxic (food grade), and has excellent aging characteristics. This tubing fits probes, filters, and pump fittings listed on this page. Sold in 100 foot coils.

2C-100 (100' COIL) \$ 13.50

miniature

DELI-CUT FINGER TWEEZERS

Tiny tweezers fit on operator's fingers for maximum control and reduction of eye fatigue. All four styles are non-magnetic stainless steel, satin polished for cleanliness and handling ease.



Style E3	Style E5	Style E7	Style E2A
Extra-fine smooth tips.	Super-fine smooth tips.	Curved extra-fine smooth tips.	Rounded blunt tips.
38B210 \$7.45	38B212 \$7.45	38B214 \$7.45	38B216 \$7.45

Replacement Velcro Straps Catalog No. 2014 \$1.00

JENSEN TOOLS AND ALLOYS

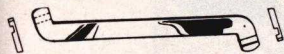
4117 N. 44th Street, Phoenix, Arizona 85018

RELAY TOOLS

SPRING AND ARMATURE ADJUSTERS

Listed below are the most popular armature, spring, and contact adjusters. Use for setting airgaps and clearance, for tensioning, and for straightening. Tools are high carbon steel—heat treated and tempered. Some have insulated handles.

TYPE SA-6 ARMATURE ADJUSTER



Armature adjuster with oblique slots tapered from .115" to .130" wide by .047" deep. Length 3 1/2". (Automatic Electric #H-88502-1).

63B100 \$2.20

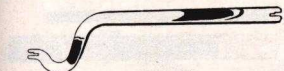
TYPE SA-8 ARMATURE ADJUSTER



Armature adjuster with three oblique slots .1094" wide by .047" deep. Length 3 1/2". (Automatic Electric #H-14768—Western Electric #597A).

63B105 \$2.20

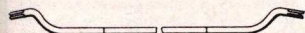
TYPE SA-9 ARMATURE STOP ADJUSTER



Armature stop adjuster with .064" slots stepped down to .032" each end. Length 5". (Automatic Electric #H-14769).

63B107 \$1.94

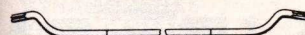
TYPE SA-18 SPRING ADJUSTER



Spring adjuster, offset, with .018" lengthwise slots. Length 6 3/4". Insulated handle. (Automatic Electric #H-42873—insulated).

63B109 \$2.73

TYPE SA-32 SPRING ADJUSTER



Spring adjuster, offset. Similar to above except lengthwise slots are .032". Length 6 3/4". Insulated handle. (Automatic Electric #H-20777—insulated).

63B111 \$2.72

TYPE SA-246 ADJUSTER



Adjuster tool with slots .040" and .028". Length 5 1/2". (Automatic Electric #H-24600-1).

63B113 \$2.56

TYPE N-268 SPRING ADJUSTER



Spring adjuster, double end, with in-line slots .025". Length 6 3/4". Insulated handle. (Western Electric #268).

63B115 \$5.95

TYPE N-371 SPRING ADJUSTER



Single end spring adjuster with .057" slot. Length 4". Insulated handle. (Western Electric #371).

63B117 \$6.90

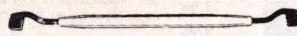
TYPE N-415B CONTACT ADJUSTER



Contact spring adjusting tool for horizontal relays in step-by-step dial systems. Double end slots .020". Length 6 3/4". Insulated handle. (Western Electric #415B).

63B119 \$7.95

TYPE N-416B CONTACT ADJUSTER



Same as 63B119 above, except slots are .035". (Western Electric #416B).

63B121 \$7.95

TYPE N-504-34 SPRING ADJUSTER



An oblique, offset, double-end spring adjuster with .018" wide slots. Length 4 3/4". (Automatic Electric #H-88504-1).

63B123 \$4.24

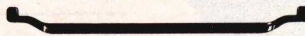
TYPE N-363 ADJUSTER



Adjuster tool with 1/8" round shank tapering down to .018" wide slot 3/8" deep. Round insulated handle. Overall length 4". (Western Electric #363).

63B091 \$4.20

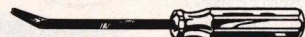
TYPE N-58 SPRING ADJUSTER



Double-end spring adjuster with 1/8" offset slots .023" and .025". Length 6 3/4". (ITT #580770).

63B127 \$7.45

TYPE N-88 BENDING TOOL



A fast bending tool with 30° offset end and .036" slot. Plastic screwdriver-type handle. Length overall 7 1/2". (Stromberg #88).

63B089 \$7.95

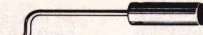
TYPE N-259 SPRING ADJUSTER



Single-end spring adjuster with .031" in-line slot. Insulated handle. Length 6 1/2". (Western Electric #259).

63B129 \$6.40

TYPE N-340 ARMATURE ADJUSTER



Armature and contact airgap adjuster for polarized relays. Round insulated handle. Overall length 3 1/2". (Western Electric #340).

63B131 \$2.20

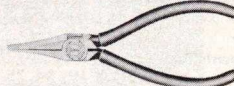
BANK CLEANER



Bank cleaning tool for use on Strowger switch banks. Thickness .042" 200 point. Length 6 3/4". (Automatic Electric #H-16590-1).

167B011 \$4.60

RELAY PLIERS SPRING ADJUSTERS



Flat-nose relay pliers. Inside jaws polished. Handles plastic dipped. Length 5 1/4". For adjusting relay springs and blades.

37B710 \$6.75

SKINNING PLIERS



Popular in telephone and switchboard work. Skins AWG 22 or 24 wire. A slot in the nose cracks insulation. Overall length 6". Plastic coated handles.

37B720 \$5.45

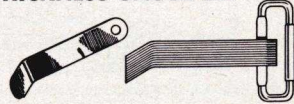
LAMP-CAP EXTRACTOR



Specially designed to extract lamps from switchboards. Handles plastic dipped. Length 5 1/4".

37B586 \$5.70

THICKNESS GAUGE SET



To set contact springs to proper spacing. Set of 13 leaves 1/2" wide by 3" long with 30° offset. Includes sizes from .0015" to .018".

63B137 \$8.50

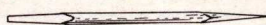
GUIDE-PIN SCREWDRIVER



Guiding screwdriver for small "hole in head" screws. Retractable guide pin simplifies screw insertion and removal. (Western Electric #KS2348).

63B139 \$8.50

ORANGEWOOD STICKS



For cleaning, probing, and positioning. Length 7". Made of orangewood.

23B758 \$.39

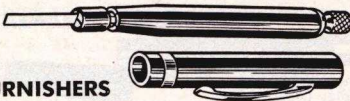
JENSEN PAYS THE SHIPPING CHARGES!



RELAY TOOLS



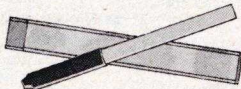
INSULATED CONTACT BURNISHERS



Pocket-type burnisher comes with a magazine of 6 extra blades. Blades are "non-residual", meaning nothing is left on the contact to start new carbonaceous build-up. Use on silver, platinum, gold, palladium, tungsten, molybdenum, all precision metal contacts. Blades fit into chuck at end of barrel. Any degree of blade rigidity is possible by varying depth of blade in chuck. Barrel material is black plastic, permitting work on "live" equipment. Length 4 1/4". Diameter 3/4". Blades are 1 1/2" long by 3/4" wide. Blades furnished are .007" thick. Replacement blades available .007 or .0035" thick. Barrel also takes ball-end rods which are abrasive-tipped for cleaning concave contact points. Ball is .020" diameter. Sold in packs of 50 (see below).

63B082 Burnisher	\$ 5.95
(In lots of 10, \$4.75 each)	
63B084 Pkg. 25 Blades .007"	3.95
63B085 Pkg. 25 Blades .0035"	5.95
63B087 Pkg. 50 Ball-end Rods	18.75

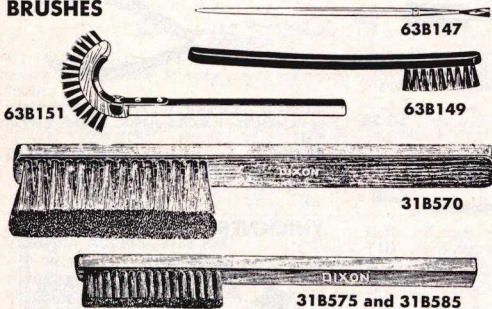
FINGER BURNISHERS



Tiny burnishers are "non-residual", for use on all precious-metal contacts. Each burnisher is 3" long with a 2" burnishing segment. Width is 3/16" and the blade thickness is .007". Perfect for use in cramped places. Sold in packs of 3 burnishers.

960 (Pkg. 3)	\$ 1.79
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BRUSHES



Assorted brushes used for cleaning relays and switchgear, plus general use in shop and lab. 63B147 for fine cleaning and dusting. 63B149 is the popular typewriter cleaning brush. 63B151 is a rotary selector switch or bank-cleaning brush (Western Electric #389A). 31B570 is a general-purpose bench-cleaning brush with 4 rows of 1 1/2" bristles. 31B575 is a brass scratch brush with 3/4" wires. 31B585 is the same, but with steel wires.

Cat. No.	Description	Length	Each
63B147	Artist-style paint brush	7"	\$.98
63B149	Toothbrush-style typewriter brush	6"	.49
63B151	Dial bank cleaning brush	8"	3.35
31B570	Bristle bench brush	11"	2.25
31B575	Hand scratch brush, brass	8"	2.95
31B585	Hand scratch brush, steel	8"	2.45

CONTACT CLEANER

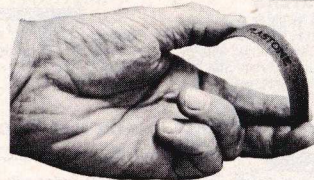
"Relay-Kleen" is an excellent degreaser and general solvent for relays, contacts, and electronic devices. Leaves no oily residual deposits. Aerosol 6 oz. can includes pin-point spray extension.

60B130	\$2.75
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FLEXIBLE FILES

PLASTONE
REG. TRADE MARK



Flexible abrasive tools that are non-conducting and non-chipping. Made of super-hard aluminum oxide. Can be used wet or dry, with oil or water. For dressing contacts, polishing hard metals, sharpening knives, grinding sharp edges off glass, removing tool marks and rust from metals. Used by electricians, die makers, electronic technicians, field engineers. Offered in 5 grits from 80 to 320. Dimensions of each file 1/2 x 4 3/4". Note: Electrical contacts should be wiped clean after using Plastones.

Cat. No.	Thickness	Grit	Description	Each	Box 12
3043	.040"	80	Coarse	\$.29	\$2.95
3044	.040"	120	Medium	.29	2.95
3045	.040"	180	Fine	.29	2.95
3046	.040"	240	Extra-fine	.29	2.95
3048	.040"	320	Polish	.29	2.95
1045	.015	180	Fine	.29	2.95

EMERY STICKS



For finishing and polishing precision parts. Emery surface is bonded to rigid stick 11" long, with bare handle segment at one end. Offered in flat, half-round, and triangular shape in two grits.

Cat. No.	Shape	Width	Grit	Each	Lots 12
65B759	Flat	3/4"	2	\$.85	\$.77
65B760	Flat	3/4"	2/0	.85	.77
65B761	Half-round	1/2"	2	.85	.77
65B762	Half-round	1/2"	2/0	.85	.77
65B763	Triangular	1/4"	2	.85	.77
65B764	Triangular	1/4"	2/0	.85	.77

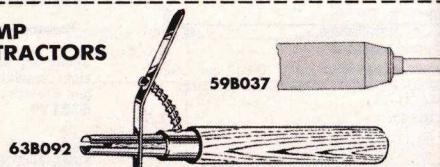
RELAY-SWITCHBOARD WRENCHES

P.K. **Neuses**



63B093	63B096
63B093 and 63B094 are flat, compact double open-end wrenches for use in the most restricted spaces. 63B093 is 3/4" and 1/4", 63B094 is 5/8" and 7/8". 63B096 is a double-ended socket wrench with center plastic handle. For use on hex nuts 5/16" and 3/8".	
63B093 FLAT (3/16 - 1/4")	\$ 1.25
63B094 FLAT (5/32 - 7/32")	1.25
63B096 SOCKET (9/32 - 5/16")	3.90

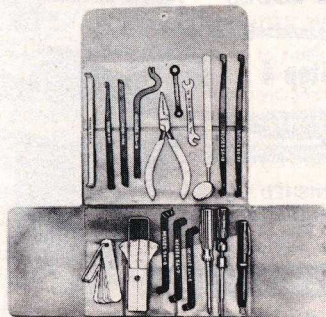
LAMP EXTRACTORS



To remove and insert tiny lamps in panels, switchboards, and instruments. 63B092 is Neuses mechanical-type extractor 3/4" long with 1/2" handle. 59B037 is a special tip for Edsyn vacuum desoldering tool (59B027). Removes T-1 1/4 lamps. Order tool separately p. 87.

63B092 NEUSES EXTRACTOR	\$ 2.95
59B037 EDSYN EXTRACTOR TIP	2.15

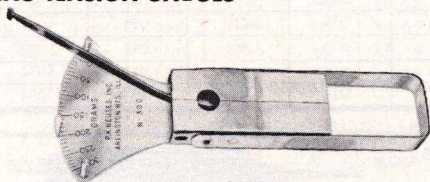
18-PIECE ADJUSTING KIT P.K. **Neuses**



Ever since relays were invented there has been a need for a set of specially-designed tools to adjust them. The Neuses TK-18 kit features 18 carefully-selected tools—everything needed to adjust, clean, and check all types of relays. Includes 7 adjusters, flat-nose pliers, spring tension gauge, Phillips-head screwdriver, 2 offset screwdrivers, inspection mirror, box wrench, open-end wrench, insulated pocket burnisher tool, thickness gauge set, and screwholding screwdriver. All 18 tools and a booklet, "How to Service Relays" are furnished in a heavy-duty plastic case.

63B080 Adjusting Kit \$ 49.50

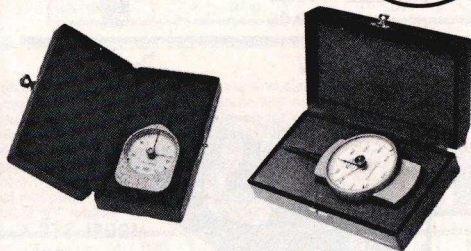
SPRING TENSION GAUGES



For setting or checking tension of relay springs, other springs and electromechanical devices. Well made and highly accurate. The frame is made of non-magnetic stainless steel, calibrated front and back. Folding handle. Adjustable tension attachment. Length 4 1/2". Offered in three popular sizes from 10 to 150 grams. Models 63B141 and 63B143 are zero-center types.

63B141 (10-0-10 GRAMS) \$9.85
63B143 (50-0-50 GRAMS) 9.85
63B145 (0-150 GRAMS) 9.85

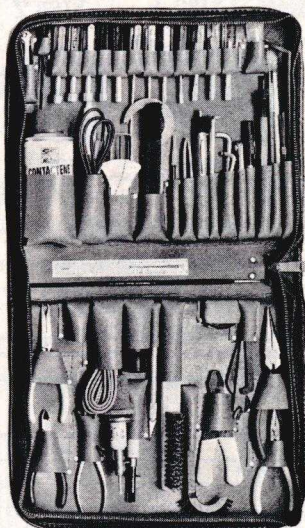
DYNAMOMETERS (GRAM GAUGES)



Dial-type gram gauges (dynamometers) used for accurate measurement of forces required to actuate relays and other sensitive mechanisms. A "maximum reading pointer" moves with the indicator when testing and then remains at the maximum force measured until reset. Furnished in small (110B090) and large (110B093) styles. Small model available with maximum reading of 5, 15, 50, or 150 grams (specify when ordering). Large model available with maximum reading of 250 or 1000 grams (specify when ordering). Both models furnished with case.

110B090 (SPECIFY GRAMS) \$ 29.95
110B090 (SPECIFY GRAMS) 59.95

DELUXE 52-PIECE RELAY SERVICE KIT



THESE FINE TOOLS INCLUDED IN THE JTK-64 RELAY SERVICE TOOL KIT

Burnisher, pocket type	Spring tension gauge, 0-50 g.
Flexible files, set of 4	Bank cleaner
Contact cleaner, 16 oz. aerosol	Driver set, 11-piece
Spring adjusters, set of 8	Screwdriver, pocket regular slot
Relay nut wrench, 3/16-1/4"	Screwdriver, pocket Phillips
Relay nut wrench, 3/16-1/2"	Screwdriver, offset, regular slot
Box wrench, 1/4-3/4"	Screwdriver, offset, Phillips
Ignition wrench, 3/4"	Orangewood stick
Ignition wrench, 7/8"	Mirror, dental type
Pliers, spring adjusting	Wire stripper
Pliers, diagonal cutter	Soldering iron
Pliers, lamp cap	Flashlight
Pliers, long nose	Scale, stainless, 6"
Lamp extractor	Spring tool, double end
Brush, fine	Knife, precision
Brush, typewriter	Tweezer, Dumont style
Brush, selector switch	Tweezer, plastic
Brush, brass	Pliers, ignition
Thickness gauge	Continuity tester
Padded zipper case, 10 1/2" x 13 1/2"	Magnifier, pocket

The JENSEN JTK-64 relay service kit is the ultimate answer to service problems of relay maintenance. It includes basic relay tools of the type offered in kit 63B080 at left, plus a wide range of more sophisticated items used by the professional service technician assigned to maintenance of equipment heavily involved with relays. Included in this kit are a pocket burnisher with extra blades, four flexible files, orangewood stick, can of Relay-Kleen contact cleaner, bank cleaner, eight spring and armature adjusters, spring adjusting pliers, diagonal cutters, lamp-cap pliers, lamp extractor, long nose pliers, ignition pliers, two double open-end wrenches, a double box wrench, and three ignition wrenches. Also included are a typewriter brush, a selector switch brush, a fine brush, and a brass brush. Additional tools included in the set are an 11-piece pocket driver set (slotted and Phillips drivers and nutdrivers), two additional pocket screwdrivers, two offset screwdrivers, Dumont-style fine tweezers, plastic tweezers, precision knife, wire stripper, soldering iron, mirror, penlight, double-ended spring tool, and a pocket magnifier. Measuring equipment includes a stainless rule, thickness gauge, spring tension gauge, and a continuity tester. This entire assortment of relay service tools is furnished in a surprisingly compact padded zipper case having inside dimensions of approximately 12 x 10 x 2 3/4". JTK-64 is more expensive than most relay service kits, but when viewed in terms of labor rates and down time of vital equipment, there is no substitute for having all needed items available on the first call.

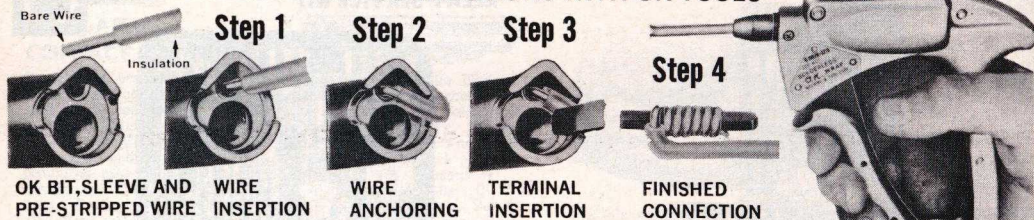
JTK-64 \$139.00

NOW YOU CAN CHARGE IT!



WIRE WRAPPING TOOLS

HOW TO MAKE SPEED-WRAP CONNECTIONS WITH OK TOOLS

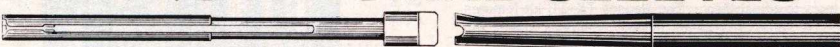


REGULAR WRAP



Wire-wrapping provides a positive, uniform, electrical connection faster and more economically than any other method. There is no need for soldered contacts. No skill is required to produce perfect wire-wrapped connections of "gas tight" quality.

COILTITE® BITS AND SLEEVES



MODIFIED WRAP



WIRE GAUGE (AWG)	REG	MOD	COILTITE BIT PART NO.	Price	COILTITE SLEEVE PART NO.	Price	MAXIMUM INSULATION DIAMETER	TERMINAL HOLE DIAMETER	TERMINAL HOLE DEPTH	MINIMUM TERMINAL DIAGONAL	MAXIMUM TERMINAL DIAGONAL
22	*		KB22	\$14.85	P2224	\$ 5.65	—	.075	.750	.054	.073
22-24	*		KB224	14.85	P2224	5.65	—	.075	.807	.054	.073
24	*		KB24	14.85	P2426	5.65	—	.075	.750	.055	.074
26	*		WB26SM	20.65	P26LN	13.50	.031	.040	.750	.023	.038
26	*		WB26M	14.85	P2224	5.65	.046	.075	1.000	.054	.073
26	*		KB26	14.85	P2426	5.65	—	.075	1.000	.058	.073
28	*		WB-28SHM	20.65	P3032	13.50	.030	.036	.750	.031	.034
30	*		SB30MSH-B	20.65	P3032	13.50	.027	.036	.750	.031	.034



SPEED-WRAP® ELECTRIC POWERED WIRE-WRAPPING TOOL

The Model EW-7D, with its specially formulated reinforced plastic housing, is an attractive, lightweight, and easy-to-use tool. Its rugged motor is designed for high production, long life and low maintenance.

Each tool is equipped with a nylon neck harness which prevents the tool from being dropped, and frees both hands when the tool is not being used. These tools are equipped with 9 foot (3 meters) grounded 3 wire cords and plugs.

EW-7D Speed-Wrap Wire-Wrapping Tool 110 Volts A.C. **\$ 97.85**

EW-7D-BF Speed Wrap Wire-Wrapping Tool with Back Force Spring **106.85**

EW-7D-48 Speed-Wrap Wire-Wrapping Tool 48 Volts D.C. **109.85**



The price of the tool does not include Coiltite bit and sleeve.

WIRE CUT AND STRIP ATTACHMENT MODEL STE-7

Model STE-7 is a lightweight, precision device which clips easily to all Models EW-7D without tools. Cuts and strips from reel or harness without nicking the wire. Strip length easily adjustable to meet your requirements. For Kynar and all PVC type insulations.

MODEL	WIRE SIZE AWG	Price	REPLACEMENT BLADE NUMBER	Price
STE-7-22	22 ga.	\$57.35	STE-7-22B	\$2.45
STE-7-24	24 ga.	57.35	STE-7-24B	2.45
STE-7-224	22-24 ga.	57.35	STE-7-224B	2.45
STE-7-26	26 ga.	57.35	STE-7-26B	2.45
STE-7-28	28 ga.	60.50	STE-7-28B	4.50
STE-7-30	30 ga.	60.50	STE-7-30B	4.50



MODEL STE-7
CUT AND STRIP
ATTACHMENT

NOTE: FITS MODEL EW-7D,
IN ALL OF ITS VARIATIONS,
ONLY.



SPEED-WRAP®

MANUAL WIRE-WRAPPING TOOL CHUCK TYPE

The G-100SPEED-WRAPtool is designed to produce wire-wrapped connections by merely squeezing the trigger. This model makes full use of our line of Coillite bits and sleeves made for use in electric or air driven wire-wrapping power tools, both regular and modified. It will accommodate wire from AWG 22 thru AWG 32. For production line and field service use in the electronic, telecommunications and appliance industries.

G100/R-3278 Speed-Wrap Tool—Chuck Type \$54.00



SEE CHARTS ON PRECEDING PAGE FOR PROPER SLEEVES AND BITS TO USE WITH THIS TOOL.

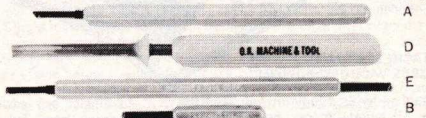
HAND WRAPPING TOOLS



These Hand Wrapping Tools are carefully designed to produce perfect wire-wrapped connections.

PART NUMBER	WIRE SIZE AWG	TERMINAL HOLE DIAMETER	TERMINAL HOLE DEPTH	OUTSIDE DIAMETER	Price
HW-18-19	18-19 ga.	.075	1.000	.250	\$26.15
HW-20	20 ga.	.075	1.000	.218	16.65
HW-224	22-24 ga.	.075	.807	.218	17.50
HW-224LH	22-24 ga.	.086	1.000	.218	16.65
HW-26	26 ga.	.075	1.000	.218	16.65
HW-26SM	26 ga.	.040	.750	.125	22.75
HW-30	30 ga.	.036	.750	.125	22.75

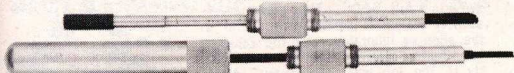
HAND UNWRAPPING TOOLS



These tools are used to easily remove solderless wrapped connections from 18 thru 32 gauge wire.

PART NUMBER	TYPE	WIRE SIZE AWG	TYPE OF UNWRAP	TERMINAL HOLE DIAMETER	TERMINAL HOLE DEPTH	OUTSIDE DIAMETER	Price
UW-1	A	20-26	LEFT	.070	.750	.156	5.65
UW-2	E	20-26	LEFT RIGHT	.070	.750	.156	8.35
UW-4	D	20-26	LEFT	.070	2.360	.187	6.65
UW-120R	A	20-26	LEFT	.070	1.000	.120	5.65
UW-093R	A	24-32	LEFT	.040	1.000	.093	5.65
UWD-93-93	E	24-32	LEFT RIGHT	.040	1.000	.093	8.35
UW-2832C	D	28-32	LEFT RIGHT	.040	.750	.156	7.75

HAND WRAPPING AND UNWRAPPING TOOLS



Now you can hand wrap and unwrap wire connections with the same tool. Here is a new convenience plus savings. One tool that does the job of two. Technicians and service men have both a hand wrapping and unwrapping tool when they have this tool in their kits.

WRAPPING SIDE

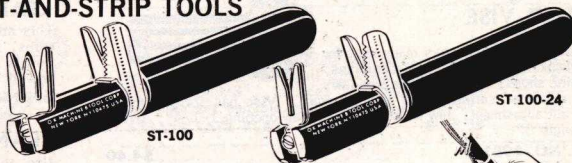
UNWRAPPING SIDE

PART NUMBER	Reg.	Mod.	WIRE SIZE AWG	MAX. INSULATION DIAMETER	TERMINAL HOLE DIAMETER	TERMINAL HOLE DEPTH	OUTSIDE DIAMETER	TERMINAL HOLE DIAMETER	TERMINAL HOLE DEPTH	OUTSIDE DIAMETER	Price
HW-UW-18-19	•		18-19 ga.	—	.075	1.000	.250	.075	.750	.187	\$37.85
HW-UW-20	•		20 ga.	—	.075	1.000	.218	.070	.750	.156	28.65
HW-UW-224	•		22-24 ga.	—	.075	.807	.218	.070	.750	.156	28.65
HW-UW-26	•		26 ga.	—	.075	1.000	.218	.070	.750	.156	27.85
HW-UW-26SM	•		26 ga.	.031	.040	.750	.218	.039	.625	.093	34.35
HW-UW-30	•		30 ga.	.027	.036	.750	.125	.039	.625	.093	34.35

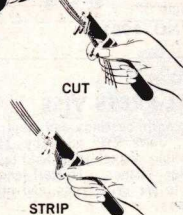
WIRE CUT-AND-STRIP TOOLS

A revolutionary new concept for easy and clean stripping of wires for wire-wrapping, electronic and appliance applications. Bio-mechanically designed for maximum efficiency. Its slim design makes it ideal for storing in belt holster or tool kit.

Easy to operate . . . place wires (up to 4) in stripping slot with ends extending beyond cutter blades . . . press tool and pull . . . wire is cut and stripped to proper "wire-wrapping" length.



MODEL NUMBER	WIRE SIZE AWG	ADJUSTABLE "SHINER" LENGTH OF STRIPPED WIRE FROM	TYPE OF BLADE	Price	REPLACEMENT BLADE NUMBERS	Price
ST-100	22-24 ga.	1 1/4"	DOUBLE	\$9.95	OK-3907-B	\$1.15
ST-100-24	24 ga.	1 1/4"	SINGLE	9.95	OK-3907-24B	1.15
ST-100-26	26 ga.	1 1/4"	SINGLE	9.95	OK-3907-26B	1.15
ST-100-28	28 ga.	1 1/4"	SINGLE	13.25	OK-3907-28B	3.15
ST-100-30	30 ga.	1 1/4"	SINGLE	13.25	OK-3907-30B	3.15



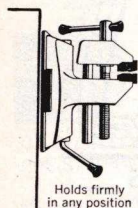
■ The above list of Cut and Strip tools are not applicable for Mylene or Teflon insulation.

JENSEN PAYS THE SHIPPING CHARGES!

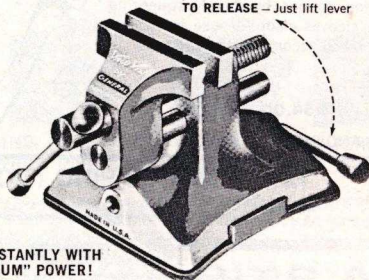


WORK HOLDERS

PORTABLE VACU-VISE



Holds firmly in any position



GENERAL®
TO ATTACH—apply slight pressure to top of VISE and push lever down
TO RELEASE—Just lift lever

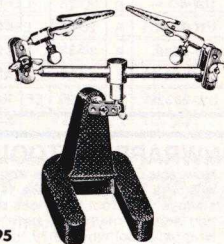
ATTACHES INSTANTLY WITH "SUPER-VACUUM" POWER!

It's portable—holds firmly in any position . . . to almost any smooth surface . . . metal, glass, porcelain, linoleum, Formica, etc. Take it directly to the job, as it attaches instantly and securely. When not in use, it can be stored in toolbox or locker. Sturdily constructed casting with 2-1/2" V-groove steel jaws which open to 2". Base size 5" wide by 4" deep by 4" high. Hammertone finish.

39B134 VACU-VISE	EA.	\$ 12.95
RP-1815 Replacement rubber base pad	EA.	2.35
RJ-1816 Slide-on rubber jaws	Pair	1.20

"THIRD HAND"

Frees both of your hands for soldering and for making fine adjustments. Two adjustable arms with alligator jaws are set in a heavy base, which prevents movement of the work. An extremely versatile tool that can be adjusted to most any position and can hold small objects of most any shape.



21B215 THIRD HAND . . . \$ 7.95

EXTRA HAND

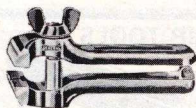
Similar to third hand above, but has single clamping tweezer instead of two clips. Heavy base prevents movement and "multi-position" swivel clamp permits holding of piece to be worked or soldered at any angle. Both hands are free to do a good job quickly. The tweezer is a heavy-duty reverse-action type.



21B316 EXTRA HAND . . . \$ 6.00

LARGE CAPACITY HAND VISE

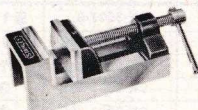
Adjustable hand vise has many uses for modelmakers, assemblers, technicians, machine shops, etc. Malleable iron jaws have machined serrations for gripping work. Vise has spring-tension wing nut adjustment. Jaw width 1-1/2". Jaw opening 1-1/4". Overall length 5".



CAT. NO. 39B137 . . . \$ 4.40

DRILL-PRESS VISE

High tensile castings and steel operating screw. Jaws 2 1/4" wide by 1 1/4" deep. Removable swivel jaws hold tapered and irregular shapes. Overall length 5 1/2". Suitable for drill press and other small machines.

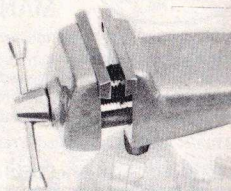


185B055 . . . \$16.85

ADJUSTABLE PANA-VISE



The Pana-Vise is an extremely versatile tool that solves many holding problems. Jaws open to 2 1/2", and various special jaws are available (see 67B137 below). The basic Pana-Vise includes a 3/8" shaft for attachment to the Pana-Positioner or the Vacuum Base Positioner (see page 35). When used with these positioners, heavy pieces can be held in any wanted position—even compound angles. Order positioners from listing on page 35.



67B135 (VISE ONLY) . . . \$ 9.60

REPLACEMENT JAWS—Steel, nylon, or nylon with "V" slot. Specify 67B137 (Specify type) . . . Pair \$ 2.00

BENCH VISE

Here is a low cost, but extremely well-made bench vise. Clamps to any normal bench. Jaws are 1-3/4" wide. Two guide pins keep jaws in alignment. This vise is unusually strong and has a rustproof finish.



21B319 BENCH VISE . . . \$ 5.90

MULTI-ANGLE VACU-VISE

Similar to regular Vacu-Vise at upper left, but this model tilts up to 90° and swivels a full 360°. This extreme versatility makes it particularly useful in the shop or laboratory, and the vacuum-base feature means it can be taken directly to the job when necessary. Metal jaws are 3" wide. A set of rubber jaws is also included. Jaws open to 2 3/4". Base size 6 1/4" triangular.



39B148 Swivel VACU-VISE . . . \$24.50
RJ-1856 Slide-on rubber jaws . . . 1.25
RP-1858 Replacement rubber base pads . . . 2.90

V-BLOCK CLAMP SET

Precision set of two hardened V-blocks and two clamps for holding while drilling or grinding. Matched set. Clamping capacity 1" dia.



39B144 SET . . . \$ 15.40

LEAD HOLDER

This attachment separates and holds lead wires, small tools, or light instruments. Coil is 3" long by 1" dia. Mounts to vise or work holder by means of removable clip.



67B146 HOLDER . . . \$ 5.95

BLANK VACUUM VISE

Use this vacuum base in conjunction with your own special equipment. It has a blank surface ready for drilling and tapping. See description of Vacu-Vise at left for more information on operation of this type device. Dimensions of top surface 2-3/4 x 3-3/4".



39B147 BLANK VACUUM BASE . . . \$ 6.25

BENCH BLOCK

For driving pins and rivets. Holes range from 1/8 to 3/8". Diameter 3".



39B180 BLOCK . . . \$12.00

HUNTER MINI-VISE

A sturdy vise designed for the electronics industry. When used with the proper positioner and base, this vise will hold up to 15 lbs. in any position without slipping. When bolted to bench, up to 50 lbs. can be held. Vise is chrome-plated heavy-gauge steel wire. Neoprene jaws open to a full three inches. Use for small chassis, circuit boards, boxes, and instruments. Crank handle allows quick change from one position to another. Positioner and base not included. Order separately from listing at right.



40B158 MINI-VISE \$ 11.15

QUICK-ADJUST VISE

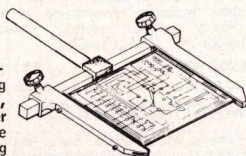
This wide-opening work holder features a new quick-adjust arrangement which allows one of the two jaws to be instantly changed from its widest opening position to various closed positions. No need for the operator to turn the adjusting knob from one extreme to the other when changing from a large object to a small one. Other features similar to Mini Vise above. Maximum opening of this model is nine inches, for use with larger circuit boards, chassis, and assemblies of all kinds. Positioner and base shown in illustration at right.



40B159 QUICK-ADJUST VISE \$ 19.25

CIRCUIT-BOARD HOLDER

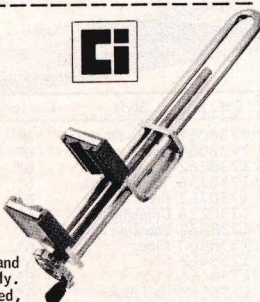
The spring-loaded arm on this printed-circuit holder makes "snuggling up" fast and simple. Holds oval, square, or oblong boards and other precise assemblies. Boards may be changed quickly without touching knobs. Board capacity is seven inches. This holder is fitted with a 5/8" shaft that may be used with the 67B127 Pana-Positioner, the Adjusto-Positioner, or the Vacuum-Base Positioner described at right.



40B143 CIRCUIT-BOARD HOLDER \$ 14.45

WIDE OPENING VERTICAL VISE

This sturdy wide-opening vise with vertically-oriented clamps was designed for positioning and holding a wide variety of electrical and electronic products, instruments, cameras, clocks and other scientific equipment. It is similar in construction to the Mini Vise above, except that the maximum opening is over six inches and the clamps are arranged vertically. Positioner and base not included, but 3/4" pin is included.



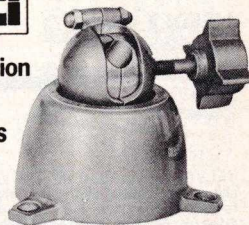
67B148 VERTICAL VISE \$ 9.60

COLBERT PANA-POSITIONER



**Holds Work in any Position
Pivots 360°
Accepts 5/8" Fixtures**

The extremely versatile Colbert Pana-Positioner is a key component in this fine line of electronic and instrument-assembly work holders. Pana-Positioner takes 5/8" shaft fixture, pivots 360° on any tangent to half a sphere, and achieves any compound angle. Single lock rigidity holds all fixtures. Die cast from rugged zinc and aluminum alloy, reinforced with steel for extra strength. Screws directly into work bench, or may be used with heavy cast base, plate, or clamp below. Two models are offered. High model (illustrated), takes work holders already equipped with 5/8" shaft, such as Pana-Vise on Page 34 and 40B143 Circuit Board Holder at left. Low model includes a permanently-mounted 5/8" pin with 3/8-24 threaded end for attachment to vises such as 40B158, and 40B159 at left.



67B127 HIGH MODEL WITHOUT PIN \$ 13.95
67B149 LOW MODEL WITH 3/8" PIN 14.95

ADJUSTO-POSITIONER

Does all the work-holding jobs of the Pana-Positioner above, but in addition allows the operator to change the height of the work. Takes all work holders with 5/8" shaft. Head and base are made of durable aluminum alloy. Shaft is 10" long and made of polished steel.

40B139 ADJUSTO-POSITIONER \$ 22.25



BASES

HEAVY CAST BASE

For use with Pana-Positioner or Adjusto-Positioner. Has holes for positioner mounting screws as well as a 5/8" hole for standard fixture shafts. Plastic bumper feet prevent scratching bench surfaces.

67B129 CAST BASE \$ 10.95



BENCH CLAMP

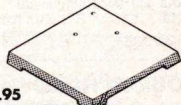
For attaching positioner to workbench or table
67B141 CLAMP \$ 10.95



BASE PLATE

A 10 x 10" cast steel base plate, cross ribbed to prevent warp. This plate is drilled for mounting positioners above. May be used as a surface plate or for layout work.

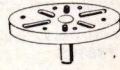
67B150 BASE PLATE \$ 24.95



FACE PLATE

A die-cast aluminum face plate with holes and slots to take a variety of small parts and assemblies. Diameter 5-3/8". Includes 5/8" steel shaft for use with any suitable positioner described above.

67B152 FACE PLATE \$ 6.55



VACUUM BASE (WITH POSITIONER)

Vacuum base holds firmly in any position to almost any smooth surface. Operating features are generally the same as for the Vacu-Vise on Page 34. This vacuum base comes complete with a special small-profile Pana-Positioner (mounting holes not interchangeable with other Pana-Positioners above). Use with Pana-Vise on Page 34 or with any work holder already equipped with 5/8" shaft.

67B154 VACUUM BASE POSITIONER \$ 19.20



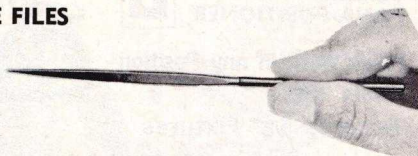
JENSEN PAYS THE SHIPPING CHARGES!



FILES

TELVAC

NEEDLE FILES



TELVAC needle files are well known for their cushion-grip handles and superb cutting quality. Only the more expensive chrome steel is used in the making of these files. They are offered in the eight different patterns illustrated below in two different lengths. For delicate work. All files are No. 3 cut.

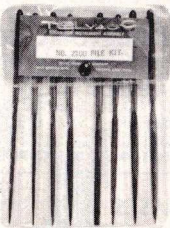
Cat. No. 4"	Cat. No. 6 1/4"	Style	Cut Symbol
1000	1100	Round	○
1001	1101	Square	□
1002	1102	Triangular	△
1003	1103	Knife	◊
1004	1104	Equaling	◇
1005	1105	Oval	◊
1006	1106	Flat	▭
1007	1107	Half round	◐

ANY 4" FILE ABOVE (SPECIFY NUMBER) \$ 1.35
ANY 6 1/4" FILE ABOVE (SPECIFY NUMBER) 1.69

(In lots of 10 or more of one kind, deduct 10% from prices above.)

NEEDLE FILE KITS

The cushion-grip files described above are also available in kit form. Each kit includes one each of the eight styles. The files are supplied in clear vinyl pouches. Offered in two sizes—kits of 4" files and kits of 6-1/4" files.



2000 (4" FILES) \$ 10.45
2100 (6 1/4" FILES) \$ 12.95

(In lots of 10, deduct 10% from prices.)

SCREW HEAD FILE

For enlarging and cleaning the slots of heads of small screws. Used by watchmakers and jewelers. Length 3".

173B101 \$3.25

NICHOLSON
U.S.A.



HANDY FILE



Combination file with single cut on one side for sharpening edged tools and smoothing metal. Double cut other side for rapid removal of metal. Length 8", with handle.

173B103 \$1.95

FOUR-IN-HAND



Versatile tool with rasp section and file section on flat side, plus rasp section and file section on half-round side. For mechanics, homeowners, field engineers. Length 10".

173B105 \$2.55

PLASTIC FILE

VIGOR®

For rapid cutting of plastic. Has double, coarse cut. Won't clog. 9" long.

FI-2001 \$ 4.95



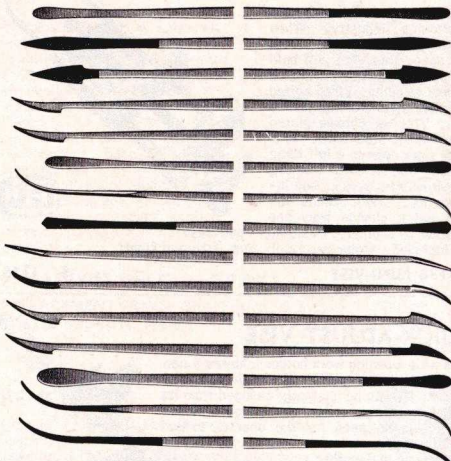
FILE CLEANER

A tool specially made for cleaning files. Stiff wire firmly set into hardwood handle gets between all cuts, cleaning out clogged particles.

FC-150 \$ 1.45



RIFFLER FILE SET



VIGOR®

UNION—SWISS riffer files are used by die sinkers, model makers, and technicians doing precision work. Teeth are cut on small areas of each end of files, with long middle portion for hand hold. Unusual shapes and curves of ends adapt to most any requirement. All files have No. 2 cut (medium). Sold in kits of 6 or 18 files in plastic case.

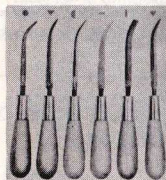
FI-236 SET OF 6 RIFFLERS \$ 20.95
FI-230 SET OF 18 RIFFLERS 62.80

HANDED RIFFLERS

NICHOLSON
U.S.A.

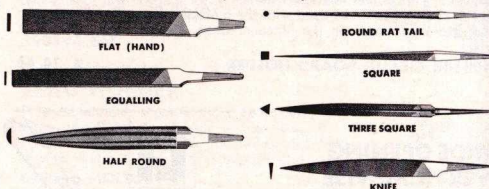
Used by wood carvers, metal and stone workers. Assortment of six shapes and cut styles. Overall length 7 3/4". With handles.

173B107 \$21.50



MACHINIST FILES

Famous NICHOLSON Swiss pattern precision files. Made from the finest steel—forged and hardened to exacting standards. Used by tool and die makers, parts finishers, craftsmen, instrument technicians.



Cat. No.	Style	Cut length	Cut	Each
173B061	Round rat tail	6"	Medium rough (1)	\$2.50
173B064	Round rat tail	6"	Very smooth (4)	2.75
173B262	Square	6"	Smooth (2)	3.10
173B136	Three square	6"	Smooth (2)	2.95
173B762	Knife	6"	Smooth (2)	4.55
173B226	Crossing	6"	Smooth (2)	5.35
173B362	Equaling	6"	Smooth (2)	2.95
173B460	Flat	6"	Rough (bastard 00)	2.75
173B462	Flat	6"	Smooth (2)	3.05
173B466	Flat	6"	Very Smooth (4)	3.50
173B562	Half round	6"	Smooth (2)	4.45
173B425	Wooden handle for above files (metal ferrule)			.55

In lots of 12 each, deduct 10% from above prices.

JENSEN TOOLS and ALLOYS

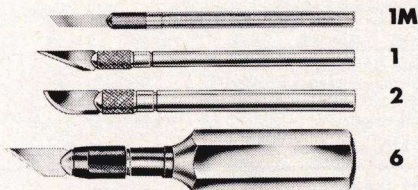
4117 N. 44th Street, Phoenix, Arizona 85018

KNIVES

PRECISION KNIVES



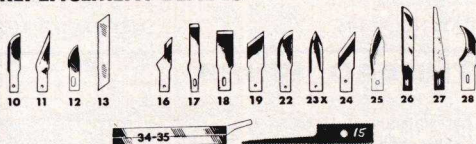
x-acto



Surgically sharp knives with interchangeable blades for carving, cutting, etching, hollowing, piercing, sawing, scoring, scraping, scribbing, slicing, slitting, stripping, trimming. Model 5 (not illustrated) is similar in appearance to 6, but has plastic handle.

Cat. No.	Description	Blade	Takes	Each	Lots 12
1M	Microsaw	13	13	\$.80	\$.72
1	Light duty	11	10-17	.75	.68
2	Medium duty	22	18-28	1.00	.90
5	Heavy duty, plastic handle	19	18-35	1.50	1.35
6	Heavy duty, aluminum handle	24	18-35	2.25	2.02

REPLACEMENT BLADES



Replacement blades and saws for knives above. X-Acto blades are surgically sharp and made of finest steels for long cutting life.

Cat. No.	Pkg. 5	Pkg. 100	Cat. No.	Pkg. 5	Pkg. 100
10	\$.96	\$17.25	18	\$.60	\$10.00
11	.60	10.00	19	.60	10.00
12	.96	17.25	22	.96	17.25
13	.70	11.65	23X	1.15	20.75
			24	.60	10.00
16	.60	10.00	25	.96	17.25
17	.60	10.00	28	1.15	20.75

Cat. No.	Each	Pkg. 3	Pkg. 100
15		\$.90	\$26.95
26		.60	17.95
27		.80	23.95
34	\$.90		81.00
35	1.00		90.00

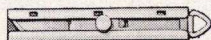
NEW! PUSH-BUTTON KNIFE



Blade is kept safely hidden when knife is not in use. Snap it out and it's ready to cut. All metal. Positive lock. Very light. For delicate, accurate cutting. Replacement blades available.

9RX KNIFE	\$ 3.25
X-9B PKG. BLADES	1.00

POCKET KNIFE

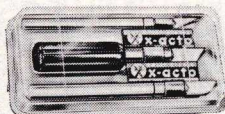


A tiny pocket knife with retractable blade. Has loop for key chain. Surgical blade with stainless steel shell. Replacement blades available.

66 POCKET KNIFE	\$.90
122 PKG. BLADES30

KNIFE CHESTS

68B081



68B083

68B081 includes X-Acto knives No. 1, 2, and 5 (described at left) plus an assortment of 10 extra blades. In hard plastic case. 68B083 includes No. 1, 2, and 6 plus an assortment of 18 extra blades. Furnished in a natural-finish wood chest.

68B081 KNIFE PACK	\$ 4.50
68B083 KNIFE CHEST	7.25

TEL VAC

PRECISION SET

A beautiful knife set consisting of precision - made aluminum handle, ten tiny hard-to-find blades, and pocket-size plastic case. This kit popular in electronic work where it is used for deburring, scraping and cleaning, stripping small wires, and for p.c. board repairs.

K-90 KNIFE SET	\$ 3.15
9100 SET REPLACEMENT BLADES	1.98



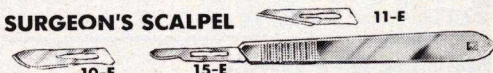
BENCH KNIFE



Heavy-duty "Sloyd" bench knife. Used by jewelers and watchmakers for cutting, scraping, reaming. Overall length 5 1/2". Blade length 1 3/4".

KN-626	\$ 2.50
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SURGEON'S SCALPEL



Sharpest knife made. Use for finest cutting and trimming. Handle is forged stainless steel. Blades furnished in packages of six (specify blade number).

65B101 HANDLE ONLY	\$ 4.10
PKG. BLADES 10E, 11E, or 15E	1.80

UTILITY KNIFE

For heavy-duty cutting of paper, cardboard, plastics, insulation, etc. Retractable blade. With five extra double-edge blades.

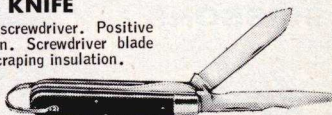
5B101 KNIFE	\$ 1.65
5B102 PKG. BLADES60



ELECTRICIAN'S KNIFE

It's both a knife and a screwdriver. Positive lock holds blade open. Screwdriver blade also has an edge for scraping insulation.

37B560 ..	\$ 3.69
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CABLE STRIPPER

Swivel-blade stripper cuts circle in cables from 3/16 to 3/4" diameter, then turns and slits axially for easy removal. Won't damage inner conductors. Includes a utility knife for added versatility.

45-127	\$ 8.25
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NOW YOU CAN CHARGE IT!

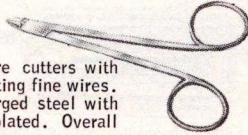
SCISSORS

High-quality scissors for electronics and instrument work. Five popular styles.

TELVAC

MIDGET NIPPER

Tiny, box-joint miniature wire cutters with scissor handles. For flush cutting fine wires. Made of high quality drop forged steel with honed cutting edges. Nickel plated. Overall length 4". Cut length 9/32".



T-3 **NET EA. \$ 5.95** (Lots of 10, \$5.35 ea.)

ELECTRONIC SCISSORS

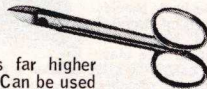
Popular, all purpose tool for cutting fabrics, foils, paper, tape, insulation, and light wires. Nickel plated. Comfortable handles. Length: 5". A "must" for every tool box.



T-6 **NET EA. \$3.75** (Lots of 10, \$3.35 ea.)

STUB-NOSE SCISSORS

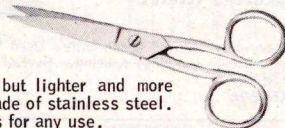
Small cut length (1/2") gives far higher leverage than ordinary scissors. Can be used as a wire cutter. Small size (4") allows access to tight spaces. Nickel plated.



T-7 **NET EA. \$4.25** (Lots of 10, \$3.80 ea.)

THIN-LINE SCISSORS

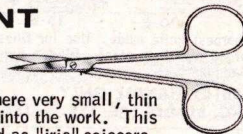
Similar to T-6 above, but lighter and more pointed. Length 5". Made of stainless steel. Good all-around scissors for any use.



T-60 **NET EA. \$2.95** (Lots of 10, \$2.45 ea.)

NEEDLE-POINT

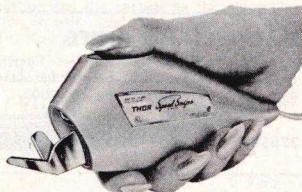
Precision-cut scissors for delicate work. Use for all trimming and cutting jobs where very small, thin blades are needed to reach into the work. This pattern known in medical field as "iris" scissors. Tips are pointed and sharp. Overall length of this model is 4-1/2". Cut length is 3/4".



T-10 **NET EA. \$3.55** (Lots of 10, \$3.20 ea.)

ELECTRIC SCISSORS

Then



Convenient tool for use in office and laboratory as well as at home. High-carbon steel blades, convenient button switch, and tough Cyclocac housing. Length 6 1/4". Weighs only 9 ounces. For 115 volts AC.

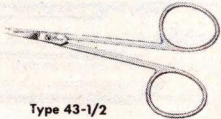
1010M **\$ 8.65**

Finest precision scissors for electronic production operations. Hot hammer forged of high carbon cutlery steel. Heavily nickel plated.

Clauss
ESTABLISHED 1887

PRECISION

Extremely fine scissors for delicate cutting and trimming. Razor-sharp blades. Good leverage. Cut length 1/2". Overall length 3 1/2".

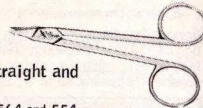


Type 43-1/2

CAT. NO. 4B110 **NET EACH \$ 5.25**

STUBBY

Powerful electronic scissors with good leverage. Length of cut 3/8". Overall length 4". Straight and curved models.



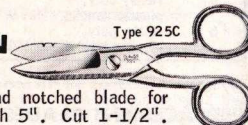
Types 564 and 554.

CAT. NO. 4B112 (Straight) **NET EA. \$ 5.75**

CAT. NO. 4B114 (Curved) **NET EA. \$ 6.00**

STRIP-JAW ELECTRICIAN

Popular electrician scissors with special jaws and notched blade for stripping insulation. Length 5". Cut 1-1/2".



Type 925C

CAT. NO. 4B106 **NET EACH \$4.75**

THREAD SNIPS

For snipping of threads, fabric, lightwire, harness ties, etc. Double plated with stainless steel bolt for maximum rust protection. Length: 4-1/2". Cut length 1-1/4".



Type TC4-1/2

CAT. NO. 4B107 **NET EACH \$ 5.75**

AVIATION SNIPS

Compound leverage for effortless cutting of sheet metal. Tough, molybdenum alloy steel. Vinyl handles for comfort and to prevent slipping. Overall length 10". Cut length 1.5".



CAT. NO. 4B109 **NET EACH \$6.25**

(Lots of 6 or more, deduct 10% from all prices above)

XCELITE

snips

Cut fine wires, filaments, sheet metals up to .025" thick. Shear action eliminates peaks on cut wires—no shock. Made of high-carbon tool steel. Cushion-grip handles. Model 85CG is stubby taper-jaw model. Model 86CG is standard model illustrated.



85CG (3/4" blade) **\$ 4.95**

86CG (1 1/2" blade) **\$ 4.95**

(In lots of 10, deduct 10% from Xcelite snip prices above.)

JENSEN TOOLS and ALLOYS

4117 N. 44th Street, Phoenix, Arizona 85018

JENSEN TOOL TIPS

CONVERSION CHART

FRACTIONAL-INCH, DECIMAL-INCH, AND MILLIMETER EQUIVALENTS

MM	Frac.	Inches	MM	Frac.	Inches	MM	Frac.	Inches	MM	Frac.	Inches
.01		.0004	8.3344	21/64	.3281	21.4312	27/32	.8437	57		2.244
.02		.0008	8.7312	11/32	.3437	21.8281	55/64	.8594	58		2.283
.03		.0012	9.0000		.3543	22.0000		.8661	59		2.323
.04		.0016	9.1281	23/64	.3594	22.2250	7/8	.875	60		2.362
.05		.0020	9.525	3/8	.375	22.6219	57/64	.8906	61		2.402
.06		.0024	9.9219	25/64	.3906	23.0000		.9055	62		2.441
.07		.0028	10.0000		.3937	23.0187	29/32	.9062	63		2.480
.08		.0032	10.3187	13/32	.4062	23.4156	59/64	.9219	64		2.520
.09		.0035	10.7156	27/64	.4219	23.8125	15/16	.9375	65		2.559
.10		.004	11.0000		.4331	24.0000		.9449	66		2.598
.20		.008	11.1125	7/16	.4375	24.2094	61/64	.9531	67		2.638
.30		.012	11.5094	29/64	.4531	24.6062	31/32	.9687	68		2.677
.3969	1/64	.0156	11.9062	15/32	.4687	25.0000		.9843	69		2.717
.40		.0158	12.0000		.4724	25.0031	63/64	.9844	70		2.756
.50		.0197	12.3031	31/64	.500	25.400		1.000	71		2.795
.60		.0236	12.700	1/2	.5118	26		1.024	72		2.835
.70		.0276	13.0000		.5156	27		1.063	73		2.874
.7937	1/32	.0312	13.0968	33/64	.5312	28		1.102	74		2.913
.80		.0315	13.4937	17/32	.5469	29		1.142	75		2.953
.90		.0354	13.8906	35/64	.5512	30		1.181	76		2.992
1.000		.0394	14.0000		.5625	31		1.220	77		3.031
1.1906	3/64	.0469	14.2875	9/16	.5781	32		1.260	78		3.071
1.5875	1/16	.0625	14.6844	37/64	.5906	33		1.299	79		3.110
1.9844	5/64	.0781	15.0000		.5937	34		1.339	80		3.150
2.000		.0787	15.0812	19/32	.6094	35		1.378	81		3.189
2.3812	3/32	.0937	15.4781	39/64	.625	36		1.417	82		3.228
2.7781	7/64	.1094	15.875	5/8	.6299	37		1.457	83		3.268
3.000		.1181	16.0000		.6406	38		1.496	84		3.307
3.175	1/8	.125	16.2719	41/64	.6562	39		1.535	85		3.346
3.5719	9/64	.1406	16.6687	21/32	.6693	40		1.575	86		3.386
3.9687	5/32	.1562	17.0000		.6719	41		1.614	87		3.425
4.000		.1575	17.0656	43/64	.6875	42		1.654	88		3.465
4.3656	11/64	.1719	17.4625	11/16	.7031	43		1.693	89		3.504
4.7625	3/16	.1875	17.8594	45/64	.7087	44		1.732	90		3.543
5.000		.1969	18.0000		.7187	45		1.772	91		3.583
5.1594	13/64	.2031	18.2562	23/32	.7344	46		1.811	92		3.622
5.5562	7/32	.2187	18.6532	47/64	.748	47		1.850	93		3.661
5.9531	15/64	.2344	19.0000		.750	48		1.890	94		3.701
6.000		.2362	19.050	3/4	.7656	49		1.929	95		3.740
6.3500	1/4	.250	19.4469	49/64	.7812	50		1.969	96		3.780
6.7469	17/64	.2656	19.8433	25/32	.7874	51		2.008	97		3.819
7.000		.2756	20.000		.7969	52		2.047	98		3.858
7.1437	9/32	.2812	20.2402	51/64	.8125	53		2.087	99		3.898
7.5406	19/64	.2969	20.6375	13/16	.8268	54		2.126	100		3.937
7.9375	5/16	.3125	21.000		.8281	55		2.165			
8.000		.315	21.0344	53/64		56		2.205			

IMPORTANT SAFETY RULES FOR HAND TOOL USE

USE THE RIGHT TOOL FOR THE JOB YOU ARE DOING

Most tools are specialized. Using them outside of that specialty is tool misuse. Don't exceed ratings. Don't add "cheaters" to increase leverage. Use screwdrivers to turn screws—not to open cans or substitute for crowbars.

DON'T USE BROKEN OR DEFECTIVE HAND TOOLS OR APPLIANCES

Tools that are cracked or worn should be repaired or discarded. Worn power cords are a sign of impending trouble and should be replaced. Only experienced personnel should make repairs on tools or shop equipment. If a strange sound in a tool or machine tells you something is wrong, believe it.

KEEP TOOLS CLEAN, IN GOOD REPAIR, AND STORED IN THEIR PROPER PLACE

Neatness and safety go hand in hand. Every tool should have its place when not in use. Keep the work area tidy, don't use work benches for storage, and get rid of rags, junk, and inflammables.

WEAR SAFETY GOGGLES WHEN DRILLING, GRINDING, FILING, ETC.

Never, never risk your eyes by failure to use safety goggles. Use face hoods, gloves, and body shields whenever there is a possibility of being struck by flying tools, parts, or chemicals. Avoid breathing fumes from solders, fluxes, paints, etc.

BE SURE POWER TOOLS AND APPLIANCES ARE PROPERLY GROUNDED

Use power tools only if they have 3-wire grounding cords or are double-insulated. Never use 3-wire to 2-wire adapters without first connecting the pigtail and being sure that the ground screw is really grounded. Keep soldering irons in stands, not on the bench.

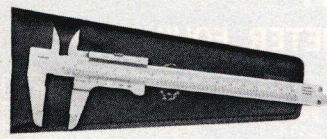
SLOW DOWN AND THINK ABOUT SAFETY. THE LIFE YOU SAVE MAY BE YOUR OWN

Use your head! A moment of thought may save your eye, your finger, your life. Never overcome a safety guard on a machine. Don't work alone on hazardous jobs. Never mix horseplay with tools or machines. If an accident does occur, get competent medical help at once.

MEASURING TOOLS

PRECISION SLIDE CALIPER

Fowler



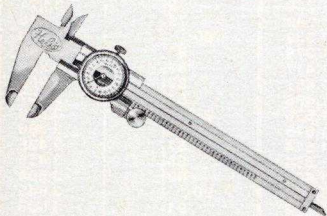
STAINLESS STEEL INCHES AND MM

An essential precision instrument for measuring accurately in thousandths of an inch. Measures inside, outside, and depth in both inches and millimeters. Gives vernier readings of 1/1000 inch or 1/20 mm. Reads up to 6" or 150 mm. With thumb lock. Made of hardened stainless steel. Comes in fitted case.

102B430 \$24.50

DIAL CALIPER

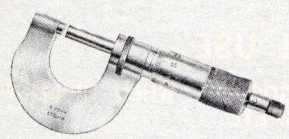
Helios



Similar to the slide caliper above, but has dial for faster error-free reading of measurement. Dial reads in 1/1000" increments. Measures outside, inside, and depth in inches. Measuring range 5". Jaws 1 1/4" long. Finest quality from West Germany. With case.

102B440 \$ 47.50

MICROMETER



A beautifully-made micrometer featuring a forged steel frame and brushed-chrome finish. Has ratchet and spindle lock. Graduated in 1/1000" units. Measures 0 to 1". This is truly a top-quality tool—made in West Germany. Comes in wooden case.

660 \$ 29.95

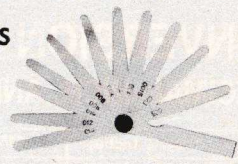
POCKET SLIDING GAUGE



Compact 4" tool measures outside diameters of cables, rods, screws, etc. Reads in inches and mm. Made in West Germany.

T-615 \$ 4.35

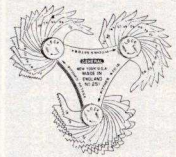
FEELER GAUGES



High-quality gauges constructed in "pen-knife" fashion. Individual blade may be swung out of handle and locked in place for use. Two models—one in inches and other in metric measure. 188-11Z has 11 blades from .0015 to .025". 188-13 has 13 blades from .05 to 1.0 mm.

188-11Z INCH GAUGE \$ 2.55
188-13 METRIC GAUGE \$ 2.75

SCREW PITCH GAUGE



A complete set of 51 screw-pitch gauges from 4 to 84 per inch. Gauges are of narrow design for gauging inside threads of small holes and nuts, as well as external threads. For gauging of V, American National, or U.S. Standard 60° threads. Folds down to compact palm-size tool.

251 \$ 10.00

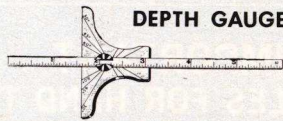
WIRE GAUGE

For gauging wire, sheets, plates, etc. of non-ferrous metals. Shows American Wire Gauge on front from 0 to 30 with decimal equivalents on reverse side. Heavy gauge hardened steel.



20 ... \$ 6.70

DEPTH GAUGE



Hardened steel head 2 1/2" across base. Measures depth with 6" stainless rule graduated in 64ths. Base has angles graduated 30°, 45°, and 60° for protractor use.

444 \$ 4.80

BULL'S EYE LEVEL

Circular, all-directional level for machinery, turntables, instruments. Diameter 1". Acrylic plastic.

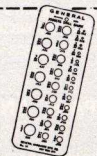


847 \$ 1.25

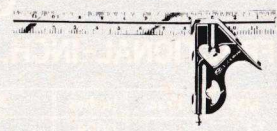
DRILL GAUGES

Heavy-gauge steel drill gauges. Use No. 13 for #61 to 80 drills. No. 15 for #1 to #60 drills.

13 \$ 4.70
15 \$ 2.60



SQUARES



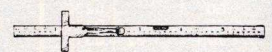
Combination squares with grooved blades graduated in 8ths, 16ths, and 32nds. Ground edges. Double hairline levels. Spring-held scriber included. Two sizes.

23B630 12" MODEL \$ 6.12
23B640 6" MODEL \$ 3.54

RULES

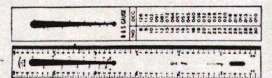
(All stainless steel)

GENERAL



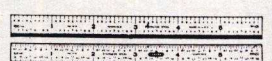
No. 301. Flexible, 1/4" wide, with depth gauge pocket clip. Graduated one side in 32nds, 64ths. Six inches long.

301 NET EA. \$.30



No. 310. Stainless rule, 6" long, 3/4" wide. Graduated in 32nds, 64ths with slot for American wire gauge and table of B. & S. wire gauge decimals.

310 NET EA. \$.90



No. 616. Flexible stainless 6" rule 1/2" wide with ground edges. Graduated in 10ths and 100ths on one side and in 32nds and 64ths on reverse.

616 NET EA. \$ 1.70

No. 1216. Same as 616 above, but 12" long. (Not illustrated).

1216 NET EA. \$ 2.50

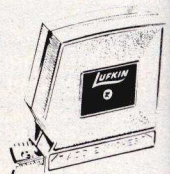


No. 311-MM. Stainless 15 cm. rule with graduations in mm. Also has inch readings with 1/4 and 1/2" graduations for comparison

311-MM NET EA. \$.70

TAPE MEASURES

LUFKIN

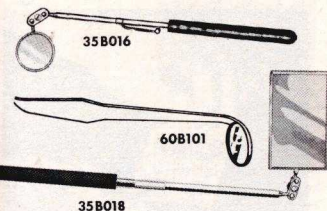


Tempered steel tapes with flow-on epoxy coating. Figures are large and black—easy to read against white background. W9212 is a 1/2" tape, 12' long, in 2" case. W6110 tiny tape is 1/4" wide and 10' long.

W9212 \$ 3.75
W6110 2.45

MISC. TOOLS

INSPECTION MIRRORS



Three models. 35B016 is circular pocket model 7-1/2" long with ball-joint adjustment. 35B018 is large rectangular model (mirror 2 x 3-1/2") with telescoping feature allowing it to extend to over 15". 60B101 is an all-plastic shockproof mirror for use on live circuits. No danger of shattering. 8" long.

35B016 ROUND	\$ 2.52
35B018 RECTANGULAR	4.07
60B101 INSULATED	.60

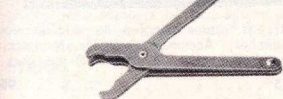
MAGNET TOOLS



Use to retrieve bolts, nuts, springs, washers etc. in hard-to-get-at places. 69B021 is telescoping model with ball-joint adjustment. Reaches to just under 15". 69B019 is fixed pocket model, 6" long. Both styles have powerful Alnico V magnets.

69B021 TELESCOPING	\$ 3.35
69B019 POCKET	1.05

FUSE PULLERS



Non-slip pullers for use on cartridge fuses. Laminated insulation construction of high dielectric material for extra strength and safety. Two sizes. Small size for 1/4 to 1/2" diameter fuses. Large size for 1/2 to 1-1/2" fuses.

60B105 SMALL	\$ 1.18
60B107 LARGE	1.72

PIN PUNCHES



Fine, tool steel punches, centerless ground and heat treated for strength and toughness. Punches are 4" long and have knurled bodies. Offered in eight sizes—1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16" (specify size desired). Complete set of eight punches includes hardwood case.

39B145 (Specify Size)	\$ 1.10
39B146 Set of 8 Punches	10.66



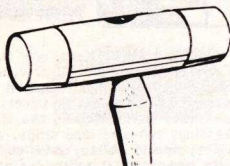
BALL-PEIN HAMMERS



Furnished in three weights—4, 8, and 12 oz. Heads are forged, heat treated, and then carefully finished and painted. Hickory handles.

61B027 (4 oz.)	\$ 2.79
61B028 (8 oz.)	3.27
61B029 (12 oz.)	3.37

SOFT FACE HAMMERS



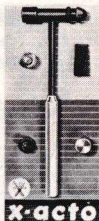
No-mar plastic tips protect the work. Hammer has 1" diameter head and 12" select hickory handle. Furnished with one soft and one hard tip. Replacement tips available.

39A HAMMER	\$ 6.75
39F SOFT TIP	1.45
39G HARD TIP	1.45
39H VERY HARD TIP	1.45

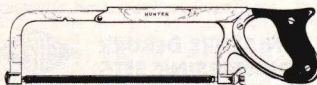
HAMMER SET

An all-metal ball-pein style hammer with set of extra soft faces to cover the heads for delicate work. Overall length 7-1/4 inches.

50-ST	\$ 4.00
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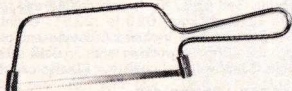
HACKSAW



A deluxe hacksaw—for professional, heavy-duty use. Reinforced frame, molded plastic handle, and reinforced finger guard. Adjusts to different blade lengths. Furnished with one 12" blade.

169B156	\$ 4.65
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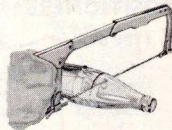
JUNIOR SAW



A miniature hacksaw that can be carried in the pocket or toolbox. Measures only 9-1/2 inches overall, by 2-1/2 inches high. Uses a 6" blade. When ordering replacement blades, specify "coarse" or "fine".

14B235 SAW	\$ 2.85
14B240 EXTRA BLADES	.55

CARBIDE ROD SAW



Made by the famous Remington Arms Company. Hundreds of tiny carbide particles are bonded permanently to the 10" rod which fits any standard hacksaw frame. No teeth to break or become dull. This amazing saw blade will cut through stainless steel, ceramic tile, cast iron, glass, masonry, tough plastics, sheet metal—even machine tools. Sawblade only—order hacksaw separately.

RRS-10 BLADE ONLY	\$ 2.35
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SCRIBES



HUNTER 56B marking awl. Useful for punching, piercing, or scribing. Sharp steel point set firmly in plastic handle.

56B	Net Ea. \$ 1.10
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HUNTER 17A double-end scribe (not illustrated). Made of hardened, tempered tool steel for working on steel surfaces. Delicately pointed for precision scribing. One end turned 90°. 8" long.

17A	Net Ea. \$.90
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JENSEN icepick (not illustrated). An extremely useful, low-cost tool for marking, punching, scribing. Good tool-box item.

J-50	Net Ea. \$.50
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Carbide-tip scribe used for marking on glass, hardened steel, ceramics, etc.

EN-731	Net Ea. \$ 1.80
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GENERAL needle-point scribe for fine work on hardest surfaces, including stainless steel. Uses replaceable alloy points. 5 inches long. Furnished with 4 extra points under hexagon cap.

84	Net Ea. \$ 1.32
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SPRING TOOLS

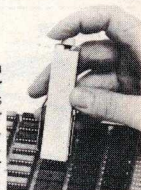


Save time and temper when removing tiny springs from relays, instruments, and apparatus. Three styles. Fig. A tools 6" long. Fig. B tool 8" long.

63B079 Fig. A-Push Type	\$1.48
63B077 Fig. A-Pull Type	1.48
171B131 Fig. B Combination Type	1.99

I-C INSERTION TOOL

For insertion or extraction of I.C.'s from sockets or circuit boards. Protects I.C.'s from damage. For use on production lines, in rework, or in the field. Simple three-step operation.



149B875	\$4.95
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NOW YOU CAN CHARGE IT!



MISC. TOOLS

POSITIONERS

TYPE 517

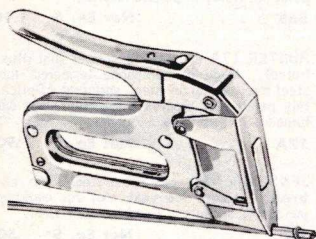
TYPE 523

Precision Deli-Cut positioners from ETM. Finger-tip tools give maximum control and efficiency when working with microelectronics, semiconductor chips, fine instruments, etc. See other Deli-Cut tools page 28.

Cat. No.	Description	Type
38B224	Straight pointed probe	501
38B222	Straight probe with hook end	506
38B218	Angled probe with hook end	517
38B220	Large round hook	523

POSITIONERS (specify cat. no.) \$4.95

STAPLE-GUN TACKER



Used by telephone and burglar alarm installers, radio and hi-fi servicemen, intercom system installers, and electricians. Tacker accommodates wires and cables up to 7/4" diameter. Round crown staples snug-fit the wire to eliminate sagging. This professional tool is of all-steel construction with chrome finish. Holds 85 staples. Just hold in place over wire and press handle. Staples are 7/8" long and sold in boxes of 5000.

84B770	\$ 21.95
84B775 BOX STAPLES	4.65

SCREW CHEK'R

Used to identify and measure machine screws, sheet metal screws, wood screws, drive screws, standard rivets, and most cotter pins. Measures screw size (#1 to 1/4"), threads per inch, and proper drill size for tap hole. Offered in Dupont Delrin or chrome-plated steel. Steel model can also be used for screw cutting and straightening. Measures 3 x 5 1/4".



143B776 (DELIN)	\$2.95
143B777 (STEEL)	5.45

SWINGER



Combination hook and pick. Just swivel out the end you want. Use as spring tool, nut retriever, probe, etc. Overall length 7 1/2". Bright plated. Aluminum handle.

69B033	\$2.65
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FIRST AID KITS



Compact first aid kits. Keep one at the bench. Carry one in your tool kit or vehicle. Kit 23B759 includes Band-Aids in two sizes, ammonia inhalants, aspirin tablets, A. and D. ointment, sterile pads in two sizes, sterile swabs, adhesive-tape strips, antiseptic swabs, antacid tablets, travel tablets, cold tablets, tweezers, scissors, and safety pins. In vinyl fold-up case. Kit 23B760 is an economy tool kit package containing Band-Aids, ammonia inhalant, aspirin tablets, antiseptic swabs, sterile pads, and adhesive-tape strips. In rigid plastic case.

165B759	\$ 6.95
165B760	2.75

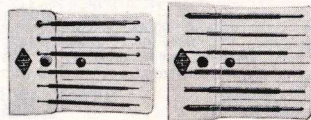
SAFETY GOGGLES



Molds to contour of face, protecting eyes from dust, spray and particles. Large lenses are non-shatterable and non-fogging. Goggles can be worn over regular glasses. Safety glasses should always be used when sanding, grinding, spraying, drilling, etc.

932-GH	\$ 2.45
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MINIATURE DEBURR COUNTERSINK SETS

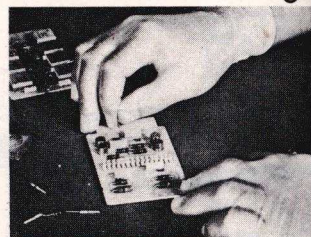


Tiny precision tools for counter-sinking and deburring small holes. Used by instrument mechanics, watchmakers, technicians. Deburring Set 65B765 has 6 double-end tools with 12 sizes from .020 to .225". Countersink Set 65B766 includes 6 double-end tools with 12 different working ends. Both sets of highest professional quality. Plastic cases.

65B765 DEBURR SET	13.60
65B766 COUNTERSINK SET	22.75

JENSEN specializes in tools for electronic assembly and fine mechanics (we do not sell component parts, fasteners, or raw materials). Because of this specialization, we are able to stock in depth the many hard-to-find tools you require in your daily work. It also means that we know our product line, and we can do provide answers to your many questions and technical problems.

CLEAN-ROOM GLOVES



Powder free, dust free, seamless vinyl gloves for use in clean rooms or when working with precision parts or instruments that cannot be contaminated with oils or moisture from the hands. Gloves are ultra-thin for sensitive touch. One medium size fits most hands. Gloves sold in packages of 10 (5 pair).

3004-M (Pkg. 10)	\$ 2.35
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FLEXIBLE PICKUP TOOL



A very handy tool for the shop. Picks up parts or hardware dropped into inaccessible places. Can also be used to hold nuts, bolts, or screws for starting. Tool is 24" long.

5089	\$ 2.65
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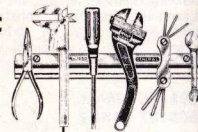
PIN STRAIGHTENER RULER



Plastic 6" ruler doubles as a tube-pin straightener. Accommodates Novar, Nuvisor, Compactor, 7-pin, 9-pin, and 10-pin tubes.

9135	\$.95
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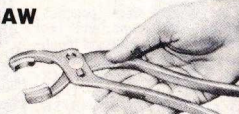
MAGNETIC TOOL RACK



Keeps tools handy, safe, and within easy reach. Racks may be mounted in parallel for holding extra-large or heavy tools. Chrome plated. Furnished with screws for attaching to wall or workbench.

1250	\$2.99
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SOFT-JAW PLIERS



Slip-joint, soft-jawed pliers used for assembly and disassembly of optical instruments and objective lens caps. Also used on multi-pin electrical connectors.

95B240	\$10.95
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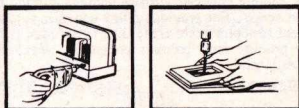
SCREW EXTRACTORS



Use these tools to remove broken screws, studs, bolts, pipes and fittings. Just drill hole in broken fasteners, tap in or screw in extractor (depending on type), turn extractor with tap wrench to remove fastener. Vaco set 36B511 is used on larger screws and pipes from 1/4 to 3/8" (use drills 1/8 to 3/16"). Ezy-Out set 88B015 is for smaller fasteners (use drills 3/16 to 1/4"). Each set has five extractors in plastic case.

36B511 \$8.45
88B015 8.95

DRILL SAW



The all-purpose tool for drilling, shaping, cutting, forming, reaming. Can be used in drill press or 1/4" electric drill. Has sharp teeth on shank that cut into soft metals, hard and soft wood, plastic, plywood, etc. Every toolbox should have the Drillsaw.

39B833 \$2.85

TORPEDO LEVEL



A popular, compact all-purpose level with three vials for plumb, level, and 45° mitre. Only 9" long—easily fits in pocket or toolbox. Tops and bottoms are ground parallel, with the bottom also grooved for use on pipes, wires, shafts, etc. Magnets in base assure greater convenience when hanging metal boxes, fixtures, etc.

37B730 \$5.95

MICRO-SCRIBER®

This is a precision, fine line scribe for marking hardened steel, glass, jewels, ceramics, as well as all softer materials. The tough solid carbide tip is diamond lapped to the correct angle for close-tolerance layout work. Light in weight. Hex-shaped aluminum handle is balanced for easy use.



186B010 \$2.95

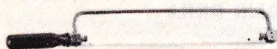
MINI-PHILLIPS



Specially made by Xcelite to accommodate the very tiny 00-size Phillips screws. Blade is 3/16" diameter by 1 1/4" long. Amber shockproof handle. Overall length 3 1/2".

38211 \$.85

HAND CRYSTAL SAW



The wire on this crystal saw is .008" diameter and is covered by 45 micron diamond particles on the full surface from end to end. Use it to cut glass, quartz, rock, stone, and all kinds of metals. Cuts diverse shapes such as cones and triangles. Ideal for cutting expensive, fragile crystals. Stainless steel frame is 10 1/2" long. Cutting stroke 9". With instructions.

187B100 SAW \$8.95
187B120 EXTRA BLADE 1.00

FINE WIRE TWISTER



An extremely useful tool for twisting wires. Allows operator to make neat cables and to group wires closely together for insertion into sleeving. Also used to reinforce extremely fine wires for soldering (wires are looped as many times as needed on the hook, and then spun into a heavier gauge which may be readily soldered or terminated). Motor operates on 50 to 115 V. AC. For best results, use with M-2B speed control (shown on page 80) or other variable-voltage device. With 3-wire cord and NEMA-type plug.

D-O WIRE TWISTER \$8.00
(In lots of 10 or more, \$79.00 each)

M2-B SPEED CONTROL \$19.95
7055 REPLACEMENT HOOK 3.10

DUST-OFF™



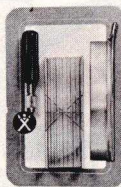
Now you can clean almost anything with a controlled burst of DuPont Freon® gas. Use it on things you dare not touch, such as fine lenses and precision mechanisms. Cleans away ordinary dust, lint, carbon specks, powder. 188B003 is a 2 oz. pocket model (with extension) for tool cases and gadget bags. 188B007 is the regular 15 oz. professional model (re-usable trigger mechanism). 188B-011 is a 15 oz. inexpensive gas refill for the 188B007.

188B003 POCKET \$1.20
188B007 REGULAR 12.50
188B011 REFILL 2.25

MITRE BOX SAW SET

An extruded aluminum mitre box 6" long with stock capacity 3/4 x 1 1/4". Has two 45° and one 90° slots machined for precision accuracy. Grooves on base of mitre box hold wood, metal, and other stock in sizes from 1/2 to 1/4". Set includes mitre box, razor saw blade, and plastic saw handle.

68B032 \$3.95



TYTAMITE RATCHET SET



Super-tiny wrench set reaches previously inaccessible locations. Toothless ratchet is only 2 1/4" long. Headroom required is 3/4 to 1/2" (depending on socket used). Set includes ratchet, four sockets (1/4, 3/16, 1/2, and 3/8"), #1 Phillips driver bit, and slotted bit. The wrench is torque rated at 20 inch-lbs. and requires only 200° working angle. In plastic box.

189B033 \$5.95

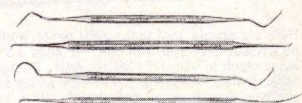
CORDLESS POWER SCREWDRIVER



Drives 80 1"-screws into pine (without pre-drilling) on one charge of its self-contained nicad batteries (about 24 minutes of driving per charge). No-load speed 150 RPM. Touch-sensitive switch has forward, reverse, off positions. Includes two slotted driver bits, two Phillips bits, and 1/4 and 3/8" drill bits. AC battery charger (included) UL approved.

190B100 \$32.95

DENTAL EXPLORERS



Set of four professional double-end dental "picks". Can be used for all kinds of precision work in electronics or fine mechanics—scribing, marking, sorting, separating, counting, positioning. Tips are extremely sharp. Set includes one each of four popular styles (eight working ends). Stainless steel, brightly polished. Average length 6 1/4".

197B004 \$9.35

CONTOURED SANDERS



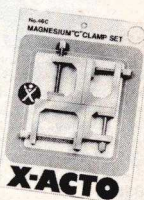
For precision sanding of metal, plastic, or wood. Five different shapes with grip-tight handles. Assortment of sandpaper included. Extra sandpaper available.

68B351 \$3.95
68B35230

C-CLAMP SET

Set of four different light weight "C" clamps. Small sizes. Made of magnesium. Dozens of uses in lab and shop.

68B046 \$3.50



JENSEN PAYS THE SHIPPING CHARGES!



MISC. TOOLS

WONDER BAR

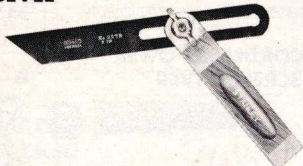
STANLEY



A great all-purpose tool for shop or home. Use it for prying, pulling nails, opening crates and boxes, scraping, lifting. Beveled nail slots on each end. Made of finest tempered steel and nickel plated finish. Blade width $\frac{1}{4}$ ". Overall length 7".

185B003 \$1.15

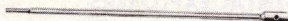
BEVEL



Use to set up, repeat, and transfer angles in many types of craft and shop work. The hand-grip handle is made of hardwood. There is a black finish on the blade. Locking device and tips are made of brass. Handle length $5\frac{1}{2}$ ". Blade length 8".

185B005 \$3.98

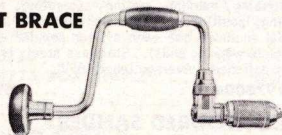
POWER DRILL EXTENSION



Here's a simple tool that you'll never want to be without once you own one. It adds 18" of extra reach to your $\frac{1}{4}$ " electric drill. Designed for use with $\frac{1}{4}$ "-shank power bits which have positive-grip flats on the shank. With key. Overall length 18".

185B007 \$4.05

BIT BRACE



This is the finest hand brace we can buy. Construction is all steel with a tough Cyclo-lac® head and handle. The steel-clad head is a ball-bearing type. The universal jaws hold straight shank bits from $\frac{1}{4}$ to $\frac{1}{2}$ ". Will also take taper shanks. Sweep 10". Has usual three-position ratchet arrangement. Nickel finish.

185B009 \$23.25

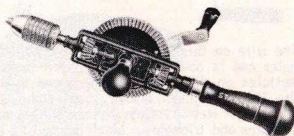
DRILL GUIDE



Now every hole you drill will be straight and on the mark, just as if you used a drill press. Rubber backing on guide keeps drill from walking, slipping, or scratching. Drill horizontally or vertically on any flat surface. Eliminates need to use center punch. Accommodates 13 drill sizes to $\frac{1}{4}$ ".

185B011 \$2.99

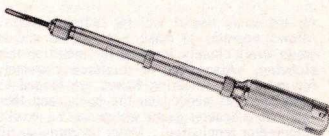
HEAVY-DUTY HAND DRILL



Heavy duty, highest professional quality hand drill. Has die-cast aluminum, parallel-sided frame. Gear teeth and double pinions are machine cut. Speed gear is 4" diameter. Steel chuck has three jaws and $\frac{1}{4}$ " capacity. Handle has cordovan finish. Comes with eight drill points in hollow handle, sizes $\frac{1}{16}$ to $\frac{1}{4}$ ". Length 13 $\frac{3}{4}$ ".

185B013 \$23.59

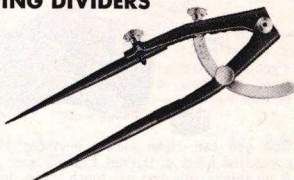
PUSH DRILL



For high speed drilling of wood, fiberboard, and other soft materials. All metal construction. Chuck holds drill points so they cannot be pulled out when the tool is in use. Magazine handle contains eight drill points, $\frac{1}{16}$ to $\frac{1}{4}$ ". Chrome plated. Length with drill in chuck 11 $\frac{1}{2}$ ".

185B015 \$12.55

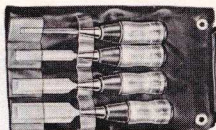
WING DIVIDERS



Use to transfer, retain, and check critical dimensions and to form radii and circles. Points are hardened steel. Has special adjusting screw and tension spring for precision settings. Length of one leg also adjustable. Overall length 7".

185B017 \$ 7.29

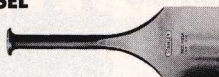
CHISEL SET



Four wood chisels in a plastic roll-pouch carrying case. Thin blades of these butt chisels are 3" long. Made from one piece of alloy tool steel and polished. Tough handle is designed for balance and grip. A crown-shaped steel cap centers hammer blows. Set includes $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1" sizes.

185B019 \$18.89

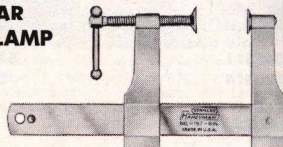
ELECTRICIAN CHISEL



Use to cut holes for electrical boxes. A real time saver. Made of alloy steel. Overall length 8" by $\frac{1}{2}$ " thick. Baked enamel handle. Polished blade has cutting edge 2 $\frac{1}{4}$ " long.

185B021 \$ 6.25

BAR CLAMP



Used like a "C" clamp, except throat size can be rapidly changed without endless turning of the screw. Bar provides quick non-slip adjustment to approximate size, then is screwed tight to provide firm holding pressure. Maximum opening 6".

185B023 \$1.79

SCREW SINK SET



A set of combination countersinks-counterbore. Prepare wood for screws (flush or deep seated) without damaging or splintering wood surface. Ideal for cabinet work, model making, boat building, repairs, etc. Set includes five popular sizes in handy plastic kit. Included are $\frac{3}{4}$ " x #6, 1" x #8, 1 $\frac{1}{4}$ " x #8, 1 $\frac{1}{2}$ " x #10 and 2" x #12.

185B025 \$9.65

MINI-HACK T.M.



Uses regular hacksaw blades or even broken pieces up to 3 $\frac{1}{2}$ " length. Does everything a big hacksaw will do and more. Durable molded frame offers maximum hand comfort. Length 8 $\frac{3}{4}$ " without blade. Blade not included. A useful item for shop or toolbox.

185B027 \$2.19

WALLBOARD SAW



A useful tool for electricians, sound men, alarm installers. Cuts sheet rock, wallboard, pressed board, etc. Commonly used to make cutouts for electrical outlets, boxes, and panels. Self-starting blade is pointed for plunge cuts. Length 6".

185B029 \$2.69

STANLEY

ROUND FILE



The famous SURFORM® tool in a round file-type design. Used for enlarging holes, forming and shaping decorative cuts, smoothing edges of holes, custom work of all kinds. Very fast. Round Sheffield-steel blade is 3/4" diameter.

185B043 \$3.39

SURFORM® MINI-FILE



A small version of the 185B037 at left. Can be used one-handed or two-handed. Molded body. Works at right angles to work. Blade cuts full width for slotting, filing, grooving. Tension spring on blade. Length overall 7 1/4". Width 1/2". 185B045 is tool with blade. 185B047 is pair of extra blades.

185B045 \$2.85

185B047 1.89

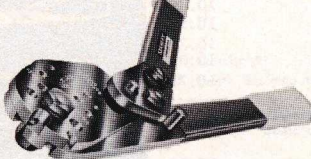
TACK CLAW



Handy tool for prying, clawing, removing nails and tacks, scraping. Better to use this tool to open cans than your good screwdrivers. Tough handle. Length overall 6 1/4".

185B049 \$1.59

BOLT CUTTER



A powerful tool for cutting threaded and un-threaded bolts and stock. Also bends wire and rod stock up to 1/4" thick. Bolt is screwed into tool to desired position. Unwanted part is then sheared off without damaging threads. Threaded for sizes 4-40, 6-32, 8-32, 10-24, 1/4-20, and 3/4-18. Nose cutting action permits cutting chain, heavy wire, fencing, etc. High-leverage handles have cushion grips. Overall length 16 3/4".

185B051 \$16.10

SPRING CLAMPS



Heavy gauge steel clamps with vinyl grips and tips to prevent marring the work. Jaws are specially formed to hold flat or round objects. Jaw opening on this heavy-duty clamp is 3". Length 8 1/4".

185B053 \$2.69

Millers Falls MF

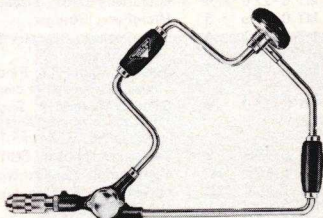
SABRE SAW



Double insulated professional duty jigsaw features ball and needle bearings and powerful continuous-use 1/4 HP motor. Shoe tilts 45° in either direction. Has reversing shoe for flush cutting. Automatic air blast clears away sawdust. Delivers 3000 1/2" strokes per minute. Comes with one wood cutting blade and hex wrench. For 115-125 volts AC.

130B060 \$46.50

CORNER BRACE



Here's a tool that allows you to hand drill holes in a corner, against walls and beams. Holds round or square bits 1/4 to 1/2". Ball bearing head. Corner gears are machine cut. Sweep is 10". Parts are nickel plated. An unusual tool. Can pay for itself on a difficult job when there is no other practical solution to the corner drilling problem.

130B502 \$38.75

CARVING TOOL SET



A set of five forged carving tools. Made of tool steel, heat treated, polished and ground. Handles are palm-shaped maple. Set includes five different edges. Tools 5" long. In protective plastic pouch with sharpening stone.

130B107 \$10.85

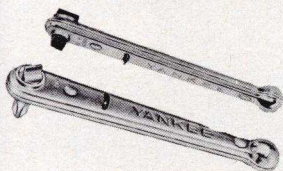
KEYHOLE SAW SET



Handy set of three blades plus handle. The quick change locking head holds blade in eight different positions. Positive chucking jaw locks blade—holds it rigid even under severe use. Set includes one each wood, metal, and keyhole blade.

185B031 \$5.85

OFFSET RATCHET DRIVERS



Compact offset ratchet screwdrivers allow tightening and loosening fasteners in the most restricted spaces. Type 185B033 has two slotted blades, 1/4 x .035" and 3/8 x .050". Length overall 3 1/4". Type 185B035 has slotted blade 1/4 x .035" one side and Phillips #2 on other side. Length overall 3 1/4". Blades are alloy steel, hardened and tempered.

185B033 \$2.19

185B035 3.55

SURFORM® TOOL



The fastest and easiest of all cutting and forming tools for use on wood, aluminum, copper, plastics, tile, soft metals, etc. Non-clogging razor-sharp cutting edges on Sheffield tool steel blade. Shavings pass through the blades. Cut at slight pressure. Body is die cast zinc alloy with high impact resistant black molded handle. 185B037 is tool plus blade. 185B039 is extra blade.

185B037 \$3.98

185B039 1.59

DRUM SURFORM® TOOL



Designed for use with any 1/4" or larger electric drill or drill press. Rotary blade of Sheffield tool steel never clogs or needs adjustment. Use for contour, circular, or straight cuts for shaping, cutting, forming, and milling. Diameter 2". Maximum safe speed 4000 RPM.

185B041 \$3.25

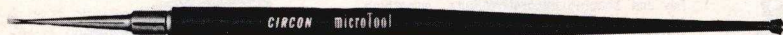
NOW YOU CAN CHARGE IT!



MICROTOOLS

microminiature precision tools

for INSTRUMENT, LABORATORY & PRODUCTION USE



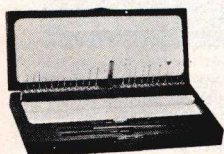
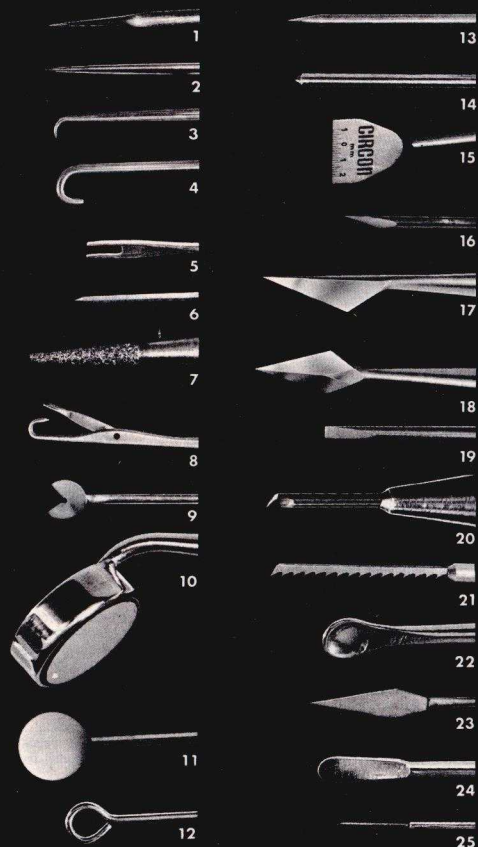
Microminiature tools with active working elements as small as 1/1000 inch in size—an order of magnitude smaller than tools previously available. The shaft immediately preceding the tip has a nominal diameter of 0.030". Photos below show tips approximately four times actual size. Use these tools for microminiature electronics, white room operations, nematology and entomology, instrument assembly, transistor



production, microscopy, dissection, microproduction, printed circuit artwork, and micromodular assembly. Finest materials used throughout. Unless otherwise stated, cutting edges, points, and working surfaces are stainless steel precision forged, machined, ground, or honed to perfection. Order handles separately (in black or red). Handles and tips are interchangeable with old-style tools which used MT-1 handle.

MICROTOOL HANDLES AND TIPS

CAT. NO.	FIG.	DESCRIPTION	EACH
MT-2	—	Interchangeable handle for all MicroTools. Black anodized aluminum.	\$ 3.95
MT-2R	—	Handle same as above but color red.	7.30
MT C-100	1	Ultra MicroNeedle. Tungsten alloy. Tip has 0.0002" radius. Straight.	12.95
MT J-100	1	MicroNeedle same as above but bent 30°.	12.95
MT C-110	2	Sharp MicroNeedle. Straight.	7.35
MT J-110	2	MicroNeedle same as above but bent 30°.	7.35
MT C-115	3	MicroHook 90°. Straight.	9.10
MT C-120	4	MicroHook 180°. Straight.	10.50
MT C-126	5	MicroFork. Straight.	12.15
MT C-431	6	MicroReamer. Diameter 0.020 to 0.025".	8.15
MT C-420	7	Diamond MicroFile. Finest industrial diamonds bonded to conical probe.	13.85
MT C-150	8	Guarded MicroHook. Thread wires through congested areas. Has anti-snag guard. 1" long.	16.75
MT J-380	9	Corner manipulator. Bent 30°.	9.95
MT J-400	10	MicroMirror. Forward type.	10.85
MT J-401	10	MicroMirror. Reverse type.	10.85
MT C-410	11	MicroBurnisher.	10.25
MT C-260	12	MicroLoop.	10.05
MT C-440	13	Carbide MicroScribe. Tungsten carbide 0.0005" radius tip.	10.75
MT C-451	14	Diamond MicroScribe. Top grade diamond mounted on steel shaft. Sharp point—90° angle.	14.85
MT C-181	15	MicroScale. Measure without microscope calibration. Length 0.25" with 0.005" divisions.	27.95
MT C-182	15	Ultra MicroScale. Length 0.10" with 0.002" divisions.	28.35
MT C-185	16	Ultra MicroKnife. Has edge 0.040".	15.35
MT C-186	17	MicroKnife. Has edge 0.100".	18.50
MT C-196	18	MicroLance. Double edge 0.100".	20.75
MT C-200	19	Sharp MicroChisel. Edge 0.030".	15.50
MT C-216	20	MicroGraver	18.95
MT C-220	21	MicroSaw	8.65
MT J-240	22	MicroSpoon. Bent 30°.	14.75
MT J-250	23	Stiff MicroSpatula. Bent 30°.	10.25
MT J-255	24	Flexible MicroSpatula. Bent 30°.	13.65
MT C-270	25	MicroBrush	8.15



TECHNICIAN'S KIT

Includes 23 different tips and 3 color-coded handles in an attractive wooden case. Contains needle points, knives, spade, chisel, graver, saw, hooks, brush, spoon, spatula, burnisher, mirror, and scale.

MTK-3 \$285.00

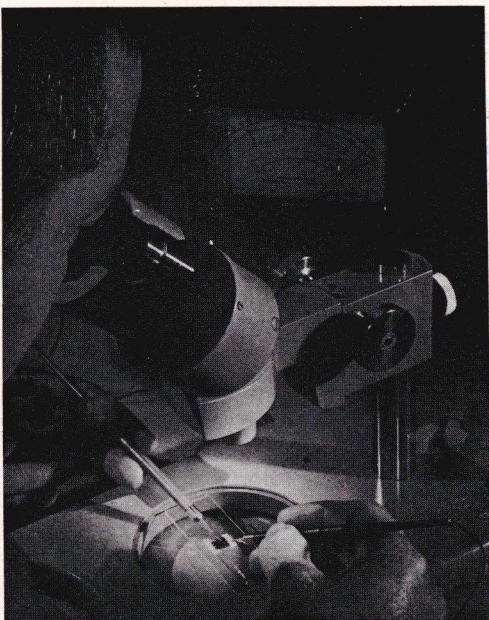
PROJECT SET

Includes 8 different tips and one handle in wooden case. Contains needle points, hook, fork, scale, knife, lance, and spatula.

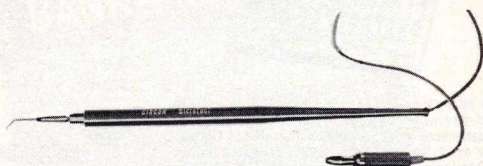
MTK-11 \$ 99.50



MICROPROBES



CIRCON microProbes FOR ELECTRICAL TESTING



Microprobes are hand-held micro-electrodes designed for testing microscopic-size circuits and miniature electronic equipment. The anodized aluminum handles are delicately balanced and fully insulated. The lead wire is light, to permit perfect control, and is fitted with a banana plug for connection to a test instrument. The working tips (10 different stock configurations) are fully interchangeable and include six pointed probes, a blunt probe, fork, loop and hook. Pointed probes are available in a straight configuration or bent 30°. Order handles and tips separately.

MPH-R (RED HANDLE)	\$ 5.35
MPH-B (BLACK HANDLE)	5.35
MPH-G (GOLD HANDLE)	5.35

(Order tips separately from listing below.)

ULTRA MICROPROBE

For testing the smallest microcircuits. Probe is high-strength tungsten .020" with tip radius .0005" and 10° included angle. Rated 0.1 A. This tip will tend to bend rather than break, even if dropped.

MP C-500 (straight)	\$ 14.75
MP J-500 (bent 30°)	14.75

MICROPOINT

Consists of a platinum-gold wire .005" diameter, heat treated and mounted in a .020" stainless-steel tube. Tip is smoothly rounded .0025" radius. Resilient tip gives under pressure. Ideal for testing .004" i.c. pads. Rated 0.1 A.

MP C-510 (straight)	\$ 17.35
MP J-510 (bent 30°)	17.35

SHARP MICROPROBE

A valuable tool for the majority of circuit testing applications. The sharp tip is ground onto a .020" diameter polished steel shaft and gold plated. Included tip angle 15°. Basic ruggedness and gold plate guarantee long life. Rated 1 A.

MP C-520 (straight)	\$ 11.45
MP J-520 (bent 30°)	11.45

BLUNT MICROPROBE

This tip is rounded by hand to insure that no irregularities will mar the surface being tested. Point has a radius of .010" formed on a tapering shaft .020" diameter. Gold plated. Used in a wide variety of circuit-testing applications. Rated 1 A.

MP C-530	\$ 10.85
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FORK MICROPROBE

A two-pronged fork designed to fix into position or saddle wires up to .025" diameter. Each prong is smoothly rounded on the outer edge and flat on the inner side for maximum contact. Prongs are .015" apart. Rated 1 A.

MP C-540	\$ 17.35
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LOOP MICROPROBE

The tip is formed into a circle .075" radius. Its entire surface is hand finished and gold plated. Suitable for testing large surfaces where unaided viewing is possible and broad non-abrasive contact is desired. Rated 1 A.

MP C-550	\$ 12.35
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HOOK MICROPROBE

Designed to hang over a connection, thus freeing one hand during testing. Hook is rounded and smooth on all edges. Made of .020" diameter gold-plated spring steel wire. Rated 1 A.

MP C-560	\$ 11.75
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JENSEN PAYS THE SHIPPING CHARGES !



WATCHMAKERS' TOOLS

PRECISION TAP-DIE SET



A selection of precision taps and dies, chosen to give wide coverage in miniature electronics, instrument work, watchmaking, etc. Chosen to meet National Miniature Aerospace Screw Standards (UNM). Set includes 18 dies and 18 sets of 3 each taps in sizes .30, .35, .40, .45, .50, .55, .60, .70, .75, .80, .85, .90, .95, 1.00, 1.05, 1.10, and 1.20 mm. Also included is a 25 mm. ring stock and a die stock with handle. Made by BERGEON. Furnished in wooden case.

21B230 \$184.95

PRECISION ANVIL



Made of hardened, polished steel. Ground flat for absolute rigidity. Hexagon design, used by instrument mechanics and watchmakers. Has 9 graduated holes from 0.5 to 4 mm. Also has 2 milled slots and one "V" slot for removing pinions. Anvil measures approximately 1-3/4" diameter by 1/2" high. VIGOR.

21B250 \$5.40

SET OF PIN PUNCHES



BERGEON pin punches, made of hardened steel with knurled handles. Set includes 5 drive pin punches from 1 to 5 mm, and a 6 mm. center punch with very fine point. Set is furnished in a polished wood box.

21B270 \$20.90

BROACHES



Cutting and smoothing broaches for cleaning, enlarging, and finishing precision holes. Cutting broaches (reamers) are 5-sided and tapered. Smoothing broaches are round and tapered. Both sets include a dozen broaches from #30 to #70 and a broach holder, packed in a permanent plastic tube.

21B290 (Cutting) \$9.60

21B300 (Smoothing) 9.60

HAND REMOVER



Used to remove hands from instruments. Also removes hands and crowns from watches and clocks. Exerts an even pressure on the hands and faceplate, to provide a smooth liftoff.

21B303 \$12.10

HAND DRILLS



X-ACTO precision hand drills with interchangeable chucks. Handle diameter is 3/4". Length is 4". Type 1D takes drills No. 60 through 80. Type 2D takes drills 50 through 63. Type 3D takes drills 44 through 53. Type 321D has handle and three chucks to take all drills from 44 through 80.

1-D NET EA \$1.60
2-D NET EA 1.60
3-D NET EA 1.60
321-D NET EA 3.40



For close-quarter drilling or deburring. Archimedian spiral drill is 3/4" long. Up and down movement turns the drill. Adjustable chuck accommodates tools up to .04" dia.

65B325 \$8.65

PIN VISES



An inexpensive, extra-small pin vise broach holder for very fine work. Has capacity from 0 to approximately .030".

31B350 NET EA. \$.90

(In lots of 12, 81¢ each)



DIXON hardened-jaw pin vises in four sizes to accommodate drills, broaches, scribers, small files, taps, etc. The handle is reduced in size to allow rapid rotation between thumb and finger.

Cat. No.	Capacity	Length	Each
31B402	0-.040"	3"	\$1.90
31B404	.030-.062"	3 1/2"	2.10
31B406	.050-.125"	3 3/4"	2.40
31B408	.115-.187"	4"	2.64
31B420	Set of four above		8.35

SLIDING-JAW MODEL



This is one of the most popular pin vises. Steel jaws are set into solid brass handle. Sliding ring, operated by one finger, opens and closes jaws. Overall length 4-1/4". Capacity from 0 to .05".

21B335 \$1.80

SCRAPER



Made with three-cornered metal blades for cleaning, smoothing, scraping, enlarging holes, etc. Blade 2-1/2" long. Hardwood handle.

21B341 \$2.20

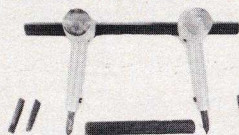
DIAMOND HOLDER



A handy tool for picking up tiny parts, nuts, etc. Jewelers use this tool to handle diamonds. The 3 prongs are automatically withdrawn into handle when not in use.

21B330 \$3.90

MULTISPAN WRENCH



Precision spanner wrench for optical, instrument, and camera work. Use to replace retaining rings and disassemble lenses. Adjusts from 1/2" to 7" diameter. Legs extend up to 3" below wrench bars. Complete with long bar, short bar, legs, and three sets of tips.

23B670 \$17.95

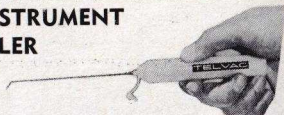
BLOWER



BERGEON blower used to clean out very fine assemblies, instruments, watches. Specially designed to fit the hands. Edging prevents rolling on bench.

21B311 \$3.25

INSTRUMENT OILER



Versatile "Reach-All" instrument oiler is fitted with an extending-retracting stainless tube that lets you reach a full 9-1/2" to put oil exactly where it is needed. Dispenses one drop at a time. Filled with highest quality instrument oil. Meets MIL-L-6085.

TVO \$1.29

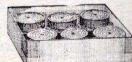
FLAT-TIP DISPENSERS



A set of 4 tools with carefully-formed flat tips ranging from extra-fine to large. For dispensing oils and cements. Color-coded handles and protective caps.

21B340 \$1.75

BUTTON PITHWOOD

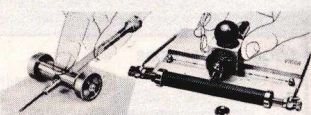


For cleaning tweezers and other small tools. Also used to hold small parts while cleaning or processing. Box of 12 assorted sizes.

21B307 \$-.99

TWEezer/SCREWDRIVER SHARPENERS

VIGOR®



Sharpener 2461 has spring action which holds jewelers' screwdriver firmly in place. Wheels provide even action when rolled over stone (not included). TW-1000 tweezer sharpener is for precise sharpening of regular style tweezers such as #3.

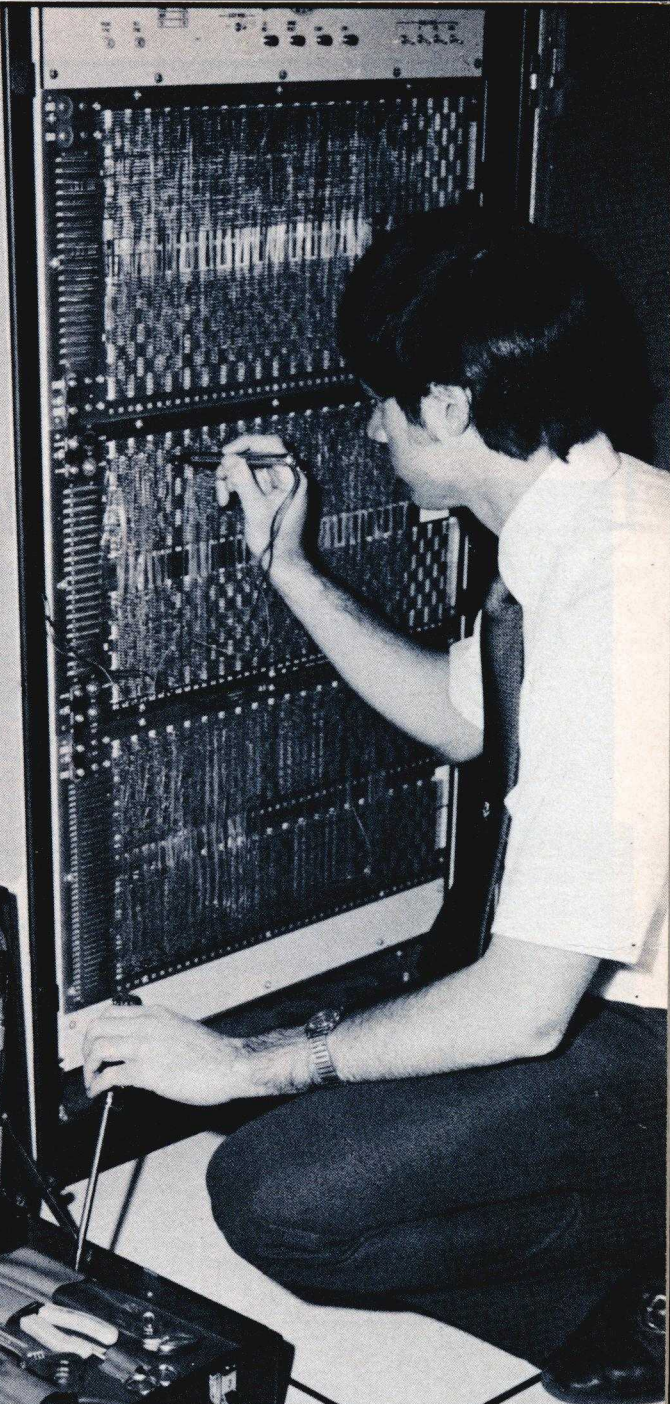
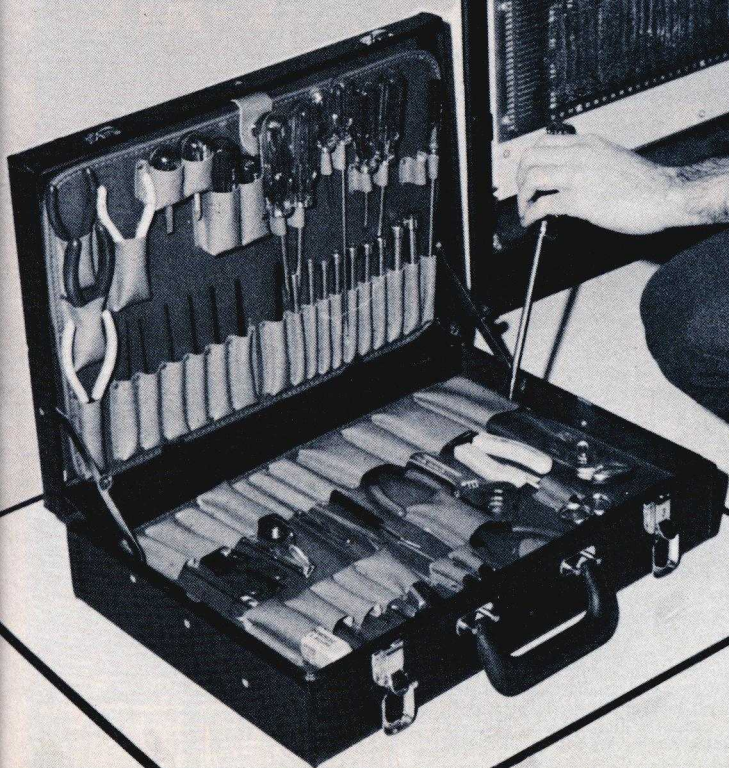
2461 \$9.45

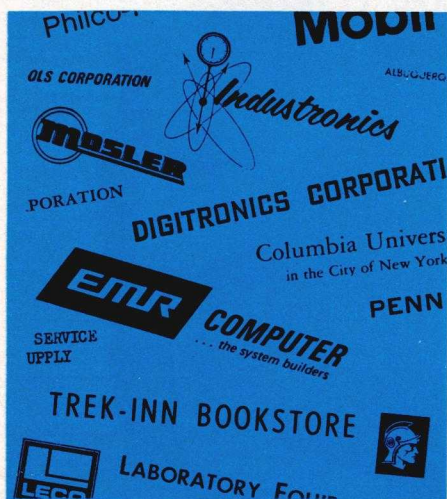
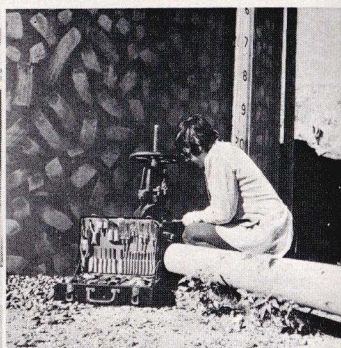
TW-1000 32.50

NOW YOU CAN CHARGE IT!



TOOL KITS
from
JENSEN





Who Uses Jensen Field Engineer Tool Kits?

Our customers are a cross section of American Industry. Professional men and women in computer service, field engineering, electronics and education continue to confirm their satisfaction with repeat orders for standard and custom-designed models. Literally tens of thousands of our tool kits and cases are in use today throughout the world.

Every Jensen kit is engineer-designed to do a particular job. Because we are broad-line tool suppliers, we can select (from more than 100 manufacturers) the right tools for each kit or for each customer. This approach completely overcomes the limitations of most tool kits offered by narrow-line tool manufacturers. We supply quality tools only made by leading name-brand manufacturers.

Twenty-two standard kits are described in this catalog. They range in complexity from student technician kits in small metal boxes to field service attache' kits including more than 100 sophisticated tools and work aids.

TOOL KIT INDEX

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Custom Tool Kits

The assembly of custom tool kits has become an important part of our business. We furnish thousands of kits each year to business machine and electronic manufacturers who have asked us to take over the task of assembling their specialized kits. Our experience and industry contacts assure prompt delivery from over 100 different tool manufacturers. If your plant or department assembles tool kits for production or field personnel, please consider Jensen as a complete source for finished kits. Address your inquiry to our Technical Marketing Department. We will be pleased to forward an attractive quotation.



JTK-1B

FOR STUDENT TECHNICIANS AND KIT BUILDERS

Includes 12 most-needed basic tools for electronic work: Soldering iron, 42 watts; wire stripper, chain-nose pliers, diagonal cutters, adjustable wrench, three screwdrivers, three nutdrivers, and a steel toolbox measuring 13½ x 6½ x 4".

THESE FINE TOOLS INCLUDED IN THE JTK-1B

Soldering iron, 42 watts
Screwdriver, regular slot, 3/16", 3" blade
Screwdriver, regular slot, 1/8", 3" blade
Screwdriver, regular slot, 1/4", 4" blade
Wire stripper

Pliers, chain nose, 4-1/2"
Solder aid, fork and reamer
Pliers, diagonal cutters, 4-1/4"
Wrench, adjustable, 6"
Nut drivers, 3/16", 1/4", 5/16"
Tool box

JTK-1B \$ 31.50

Industrial Electronic Technician Kit

44 MOST-WANTED
ITEMS
6 LEADING MANU-
FACTURERS

JTK-2



THESE FINE TOOLS ARE INCLUDED IN THE JTK-2

ITEM AND DESCRIPTION

File, needle type, 6", flat
File, needle type, 6", round
Icepick-scribe
Knife, precision, heavy-duty
Metric-to-decimal calculator
Nut-driver set, 11 pieces, 3/32",
1/8", 5/32", 3/16", 7/32", 1/4",
9/32", 5/16", 11/32", and 3/8".
Pliers, long-nose, 6"
Pliers, miniature chain-nose, 4"
Pliers, diagonal cutters, 5"
Pliers, miniature diagonal cutters, 4"
Pliers, slip-joint, 6"
Scissors, electrician's type, 5"
Screwdriver, Phillips #1, 3" blade

BRAND

Telvac
Telvac
Jensen
X-Acto
Jensen
Xcelite
Klein
Telvac
Klein
Telvac
Diamond
Telvac
Xcelite

ITEM AND DESCRIPTION

Screwdriver, Phillips #2, 4" blade
Screwdriver, 3/32" regular, 2" blade
Screwdriver, 1/8" regular, 4" blade
Screwdriver, 5/32" regular, 3" blade
Screwdriver, 1/4" regular, 4" blade
Screwdriver, 5/16" regular, 6" blade
Scale, steel, 6"
Solder, 60/40 rosin core, small pack
Soldering aid kit, 6 pieces
Soldering iron, 42 watts
Tweezers, reverse action, 4-3/4"
Wire stripper-cutter
Wrench, adjustable, 6"
Wrench set, Allen-hex, 10 pieces
Toolbox, steel, approx. 6 x 6 x 14"

BRAND

Xcelite
Xcelite
Xcelite
Xcelite
Xcelite
Xcelite
Xcelite
General
Kester
X-Acto
Ungar
Telvac
Hunter
Diamond
Telvac
Jensen

WE RESERVE THE RIGHT TO MAKE MINOR CHANGES IN
COMPOSITION OF TOOL KITS AND IN CHOICE OF MANUFACTURERS

This kit is the result of careful research and consultation with tool engineers. It was originally developed to meet the needs of large electronic-assembly plants employing many technicians or engineers. It contains all of the tools necessary to build mockups, breadboards, and electronic kits. It is also widely purchased by schools and institutions. The JTK-2 is priced below the individual cost of the tools it contains. There is no sacrifice of quality—only the tools of well-known, preferred manufacturers are included. The tools are furnished in a steel, hammerloid finish tool box with catch and padlock eye.

QUANTITY PRICES: 6 THROUGH 11, \$62.00 EACH; 12 AND UP, \$55.00 EACH

Specially Priced !

CAT. NO. JTK-2

\$69.00

(Jensen pays the shipping charge)

JENSEN PAYS THE SHIPPING CHARGES !



MASTER Industrial Electronic Technician Kit

JTK-5



The JTK-5 is an advanced version of the popular JTK-2 electronic technician kit. This fine kit includes additional tools for metal working—drills, taps, reamer, hole punches, saw, and files—enabling the worker to make complete breadboards, prototype models, even finished equipment—without having to call upon a machine shop for simple metalworking operations. Included also are alignment tools, additional wrenches, and a larger tool box. The JTK-5 can be indispensable to the field engineer, the small laboratory, or the senior technician responsible for getting the job done properly in a hurry. Conserves labor—pays for itself in a short time.

JTK-5..... \$159.00
(In lots of 5, \$145.00 each.)

TOOLS INCLUDED IN THE JTK-5

Alignment tool set, 2 tools
Center punch, 3/32"
Drills, high-speed, set of 14 from 1/16 to 3/8"
Drill case, steel, 1/16 to 1/4"
Drill, high speed, 1/4", 3/8", 1/2", 3/4", 1"
File, flat, 6" cutting length
File, round rat-tail, 6" cutting length
File, needle-type, 6" long, round
File, needle-type, 6" long, flat
Hack saw, with blade, 12" long
Hammer, ball-pein, 8 oz.
Icepick-scribe
Knife, precision, heavy-duty
Metric-to-decimal calculator
Nut driver, hollow shaft, 1/2"
Nut driver set, 11 pieces, 3/32", 1/8",
5/32", 3/16", 1/4", 5/16", 3/8",
11/32", 1/2", 5/8", amplifier handle
Pliers, long nose, 6"
Pliers, miniature chain nose, 4"
Pliers, diagonal cutters, 5"
Pliers, miniature diagonal cutters, 4"
Pliers, slip-joint, 6"

- Scissors, electrician's type, 5"
- Screwdriver, Phillips #1, 3" blade
- Screwdriver, Phillips #2, 4" blade
- Screwdriver, 5/32" regular, 2" blade
- Screwdriver, 5/32" regular, 3" blade
- Screwdriver, 5/32" regular, 3" blade
- Screwdriver, 1/4" regular, 4" blade
- Screwdriver, 5/16" regular, 6" blade
- Scale, steel, 6 lb.
- Slide caliper, 4"
- Socket punches, set of 4, 1/2", 5/8", 3/4", and 1-1/8"
- Solder, 60/40 rosin core, small pack
- Soldering aid kit, 6 pieces
- Soldering iron, 37-1/2 watts
- Tap tool with handle, 6-32, 8-32, 10-32
- Tweezers, industrial, pointed
- Reamer, 1/2"
- Wire stripper-cutter, adjustable stop
- Wrench, adjustable, 8"
- Wrench set, Allen-key, 10 pieces
- Wrench set, open-end, 10 pieces
- Toolbox, steel, 6 x 6 x 19"

Attention....

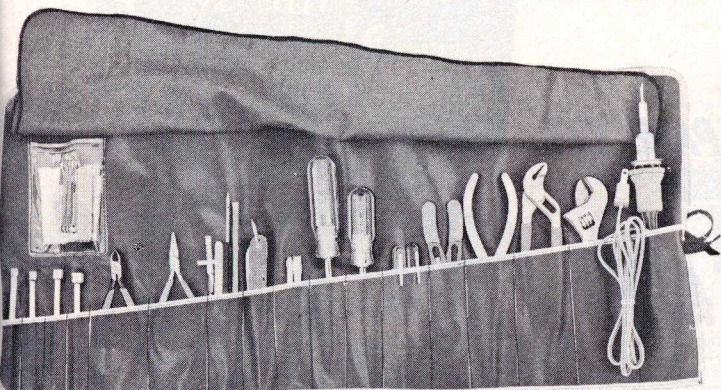
VOCATIONAL EDUCATION INSTRUCTORS

JENSEN furnishes tool kits to many schools and institutions. Some departments purchase the standard kits shown on these pages. Others design and specify kits (to meet the requirements of particular courses of instruction) using any of the thousands of items listed in our catalog. We also supply tools, kits, and cases to college bookstores and to correspondence schools for resale to students. If you would like a quotation on standard or special kits for inclusion in your next budget, contact JENSEN'S

TECHNICAL MARKETING DEPT.

ROLL POUCH KIT JTK-80

FITS IN BRIEF CASE, GLOVE COMPARTMENT OR DESK DRAWER



A new, low-priced kit for electronic technicians, service engineers, students, and kit builders. Consists of 25 of the most essential tools, including items not usually found in sets of this type (soldering iron, burnisher, electrician's knife, scale, etc.). The pouch itself is made of a heavy canvas-like fabric for long wear. Easily fits in a briefcase, glove compartment, or desk drawer.

JTK-80 \$52.00
(Lots of 10-49, \$46.00 each.)

THESE FINE TOOLS INCLUDED IN JTK-80

Alignment tool
Burnisher, contact type
Handle for driver blades, 3"
Handle for driver blades, 4"
Knife, pocket, electrician's type
Nutdriver blade set, 4 pieces, 3/16-3/8"
Pliers, long-nose, 6"
Pliers, miniature chain-nose, 4 1/4"
Pliers, miniature diagonal cutters, 4 1/4"
Pliers, slip-joint, 6"
Scale, 6", stainless
Screwdriver blade, Phillips #1
Screwdriver blade, Phillips #2
Screwdriver blade, regular, 3/16"
Screwdriver blade, regular, 3/8"
Screwdriver, pocket, Phillips #0
Screwdriver, pocket, regular, 3/16"
Solder aid, fork and reamer
Soldering iron, 37 1/2 W.
Tweezers, reverse action, 4 1/4"
Wire stripper-cutter, adjustable stop
Wrench, adjustable, 8"
Wrench set, Smitty-type, 6 hex keys
Wrench set, Smitty-type, 6 spline keys
Roll pouch, canvas, 27 1/2 x 13"

JTK-8 ASSEMBLERS TOOL KIT

20 CAREFULLY-SELECTED TOOLS



Here is a new kit requested by industrial plants employing many electronic circuit-board assemblers. The tools have been carefully selected to perform all the needed assembly functions from component lead bending to final soldering of printed circuit boards. Included in the kit are a lead-bending gauge for 1/4 and 1/2-watt resistors and diodes, a needle-nose plier with smooth radius edges, a diagonal flush cutter made of extra-hard steel for long life when cutting hard component leads, a wire stripper with adjustable stop, a 7-piece screwdriver-nutdriver kit, a nylon lead former, a production-quality soldering iron and stand, a solder aid tool, a solder brush, a heat sink for sensitive components, a soldering iron tip-cleaning sponge with tray, an excess solder remover, and a solvent dispenser bottle. All the tools are packed in a compact steel toolbox with padlock eye. The price of this kit is discounted from the regular net prices of the individual tools in the kit, and represents an excellent value for industrial plants setting up new production lines. Replacements for all tools in the kit are readily available from Jensen Tools.

ITEM AND DESCRIPTION	MFR	ITEM AND DESCRIPTION	MFR
Lead-bending gauge, for 1/4 and 1/2-watt resistors and similar components.	Production Devices	Needle-nose pliers, 6" long, radius edges.	Telyac
Driver kit, 7 pieces. 1/4 and 5/16" slot screwdrivers, #0 and #1 Phillips screwdrivers, 1/4 and 5/16" nutdrivers, and large handle in case.		Diagonal cutter, 4-1/2", flush cutting, for hard component leads.	Klein
Soldering iron, 25 W., 1/8" tip, with 3-wire cord and NEMA plug.	Xcelite	Nylon lead bender and former.	Hunter
Stand for soldering iron, with safety shield.	American Beauty	Solder remover with TFE tip.	Ungar
Tip-cleaning sponge with tray.	American Beauty	Heat sink, medium size, with PVC grip.	Hunter
	Ungar	Solder aid, fork and hook tips.	Hunter
		Solder brush.	Hunter
		Wire stripper with adjustable stop.	Hunter
		Solvent bottle with dispenser cap.	Jensen
		Tool box, 4 x 5 x 11".	Jensen

ASSEMBLY-LINE TOOL KIT JTK-8 \$54.50

NOW YOU CAN CHARGE IT!



JTK-90 PRECISION INSTRUMENT REPAIR KIT

**60 PRECISION ITEMS
WITH EMPHASIS ON
WATCHMAKERS' TOOLS
AND SMALL-SIZE
FASTENER TOOLS**



One of our newest and finest kits. Includes more than 60 precision tools carefully chosen for professional use on instruments and fine electronic assemblies. Emphasis is on watchmakers' tools and assembly tools in the smaller sizes. The JTK-90 is used by camera and other optical repairmen, aircraft instrument technicians, scientists, and electronic technicians working on very fine instruments and assemblies. All of the tools fit comfortably in a deluxe attache' tool case, with room to spare for special small tools or parts. A removable pallet in the cover of the case holds the smaller tools. Four roomy compartments in the bottom of the case hold the larger items (lamp, hammer, optional test meter). The thin-line case features hardwood construction, black Marvelon covering, and solid brass hardware. This is a genuinely elegant kit. It has been carefully designed for the skilled instrument technician. The optional Triplett #310 test meter features 20,000 ohms-per-volt DC sensitivity with 18 scales measuring AC and DC volts, ohms, and DC milliamperes.

JTK-90 with Triplett #310 VOM \$260.00
JTK-90 without test meter 210.00

QUANTITY PRICES:

With meter: 5-9, \$237.00 each. 10-49, \$215.00 each.
Without meter: 5-9, \$189.00 each. 10-49, \$168.00 each.

THESE FINE TOOLS INCLUDED IN JTK-90

Anvil, watchmaker's
Blower, hand operated, watchmaker's
Broach set, smoothing, 13 pieces
Burnisher/contact type
Drill set, 20 drills, #61-80
File set, needle type, 8 pieces, 4"
Hammer, ball pein, 4 oz.
Hand drill, miniature
Handle for driver blades, 3"
Hemostat clamp, 5" straight
Hex blade set, 6 pieces, .050-1/8"
Knife set, precision, 10 pieces
Lamp, high intensity, miniature
Loupe, magnifying, 10 power
Mirror, dental type
Nutdriver blade set, 3/16-1/2"
Nutdriver set, miniature, 3/16-3/8"
Oiler, long-reach instrument type
Pin punch set, 2 pieces, 1/8 and 3/32"
Pliers, long-nose, 6"
Pliers, miniature cutters, 4 1/2"
Pliers, instrument type, 4 1/2"
Pliers, retaining ring, external
Pliers, groove-joint, opens to 1"
Rule, 6", with wire gauge
Scissors, iris-type, 4 1/2"
Screwdriver, #0 Phillips, 2" blade
Screwdriver, #1 Phillips, 3" blade
Screwdriver, regular, 1/4", 2" blade
Screwdriver, regular, 1/2", 6" blade
Screwdriver, regular, 3/4", 4" blade
Screwdriver set, jeweler's, .025-1"
Scribe
Solder aid, fork and hook
Solder brush
Soldering iron, miniature, 15 W.
Solder removal bulb
Spline blade set, 5 pieces .048-.076
Spring tool
Tweezers, Dumont-type, style #7
Tweezers, Dumont-type, style #00
Vise, hand type
Wire stripper/punch, adjustable stop
Wrench, adjustable, 4"
Wrench set, open end, 3/16-3/4"
VOM test meter, 20,000 ohms per volt,
18 measurement scales (optional)
Case, attache-type 16 1/2 x 11 1/2 x 3 1/4"
inside, with removable pallet

INSTRUMENT REPAIR KIT JTK-9

This kit is similar to the JTK-90 above, but is furnished in a metal toolbox instead of attache' case. It was custom-designed to meet the needs of an aircraft-instrument repair facility in the Southwest. Included are a 10-piece nutdriver set, 2 Phillips-type screwdrivers, 6 regular-slot screwdrivers, a jeweler's screwdriver set, an optician's screwdriver with 2 blades, a pair of utility tweezers, 2 pair of Dumont tweezers (#1 and #7), a pair of clock tweezers, a 10-piece set of Allen-hex keys, a 10-piece set of spline keys, a pair of combination chain and side-cutting pliers, a pair of long needle-nose pliers with curved tips, a pair of fine diagonal cutters, a pair of normal diagonal cutters, a pair of slip-joint pliers, a pair of 10" water-pump pliers, a 5-piece ignition wrench set, a #2 crossing file, a metal ball-pein hammer, a soldering iron, a soldering iron sponge and tray, a soldering iron holder, a set of 20 precision drills #61 to #80, a double-lens eye loupe, an instrument hand remover, a miniature jeweler's anvil with 9 holes and 2 slots, a set of cutting broaches, a set of smoothing broaches, a small pin vise, a hand blower, a double-end scribe, boxes of pegwood and pithwood, a fiberglass brush, a set of 5 precision pin punches, a vacuum vise, a heat sink, a crimping tool with bolt cutter, and a small pen oiler. All of the tools are packed in a steel toolbox (19 x 6 1/2 x 6") with tray. The kit is shipped postpaid in the U.S.

INSTRUMENT REPAIR KIT JTK-9 \$217.50



PRINTED CIRCUIT REPAIR KIT JTK-41



This kit originally designed for U.S. Weather Service. Includes tools needed for repair of printed circuit boards, with emphasis on small component removal and replacement. Contains Pana-Positioner with 10" electronic vise and heavy cast base, Weller 600th temperature-controlled soldering iron with extra tip and small stand, soldering sponge and tray, lead bender, solder brush, 2 rolls desoldering wick, one-pound spool of special Kester solder with 3% silver content, one pint K-1544 flux, 3 anti-wicking tweezers in sizes 20-22-28 gauge, pair of fine taper-jaw diagonal cutters, and a pair of chain nose pliers. A special soft plastic pouch is furnished to hold the pliers, anti-wicking tweezers, solder brush, and extra soldering iron tips. All items furnished in a corrugated carton (no tool box). The FL-19B box on page 56 is well suited to this kit and may be ordered separately.

JTK-41 **\$122.50**
(Write for quotation for quantities of 3 or more kits.)

SPECIAL TOOL KITS TO YOUR REQUIREMENTS

If your plant or agency needs a special tool kit not described in this catalog, just send us a list of the required items. Our engineers will prepare a specification and return it to you promptly with a price quotation. Please try to select tools described in this catalog, as they are continuously stocked and readily available.



A fine set of 60 miniature tools used in electronics, instrument repair, and laboratory work. This kit was designed to complement the JTK-2, and thus extend the technician's working range into projects where dimensions are an order of magnitude smaller than those normally encountered. The range of tools furnished is sufficiently broad that the kit may be used for a wide variety of jobs, such as assembly of circuit boards, repair of precision instruments, research in microphysics and biology, to name just a few. See list of included items at right. Each tool is individually packaged and the entire complement is furnished in a steel toolbox. Shipped postpaid in U.S.

ELECTRONIC INSPECTION KIT JTK-72



JTK-72

For incoming inspection in electronic R. & D. and manufacturing plants. Allows the inspector to determine acceptability of a wide variety of components, materials, hardware, and sub-assemblies. Also used by line inspectors and production trouble shooters. Includes a roll-pouch set of screwdrivers and nutdrivers, additional small screwdrivers, set of Allen-hex keys, set of Bristol spline keys, pair of 6" power-track pliers, 6" open-end wrench, and a carton knife. These tools are for opening packages and equipment prior to making tests and measurements. Actual measuring tools include a dynamometer 0-50 grams, magnifying comparator with four scales in black-line and white-line, 2 drill gauges covering #1 through #80, feeler gauge .0015-.025" depth and angle gauge, screw pitch gauge 4 through 84 turns per inch, 12" stainless rule, 10" tape measure, wire gauge #0 through #30, and a Helios slide caliper 0-6" and 0-16 mm. Optical equipment includes a 2 x 3 3/4" plane mirror on extending handle, mirror set with handle and three small mirrors (one magnifying), sub-miniature high-intensity lamp, battery handle with subminiature lamp and 7" lens for viewing through very small apertures, illuminated magnifier attachment for battery handle, large 4 1/4" reading glass, and a double-lens B. & L. eye loupe. Miscellaneous items include a Dumont-style #00 tweezer, a plastic tweezer, a pocket magnet tool, orange stick, a bulls-eye level, and a pair of vinyl instrument gloves. A compact VOM tester is offered as an option. All items are furnished in a compact, deluxe attache' case with pallet for the smaller tools.

JTK-72 (With #310 VOM Tester) **\$315.00**
JTK-72 (Less Meter) **265.00**

MINIATURE PRECISION TOOL KIT JTK-3

THESE FINE TOOLS IN JTK-3

DRILL SET, miniature, 20 drills, #61 through #80
FILE SET, 8 miniature needle files, 4" size
HEAT SINK, for delicate use, with plastic-coated handle
KNIFE SET, miniature, aluminum handle with 9 blades and scribe, in plastic case
LOUPE, 10 power
NUTDRIVER SET, miniature, 5 pieces—5/64, 3/32, 7/64, 1/8, and 5/32"
PIN-VISE (hand drill) SET, with 3 chucks
PLIERS, miniature needle-nose type, 5" long
PLIERS, miniature chain-nose type, 4-3/4" long
PLIERS, miniature diagonal flush cutters, 4-1/4" long
SCALE, stainless, 6", 100th's and 64th's
SCREWDRIVER SET, jewelers type, 6 pieces
SCREWDRIVER, Phillips-type, #0 point
SCISSORS, needle-sharp points, 4-1/2" long
SOLDERING AID, micro fork and hook, 6" long
SOLDERING IRON, miniature 10 watts, 3/32" tip
TWEEZER, super-fine points, style #5
TWEEZER, wire-stripping type, style "D"
WRENCH SET, Allen-hex type, 10 keys .028 to 5/32"
WRENCH SET, spline type, 10 keys .033-4 to .133
TOOLBOX, steel, 4 x 5 x 12", with padlock hasp

JTK-3 **\$83.50**

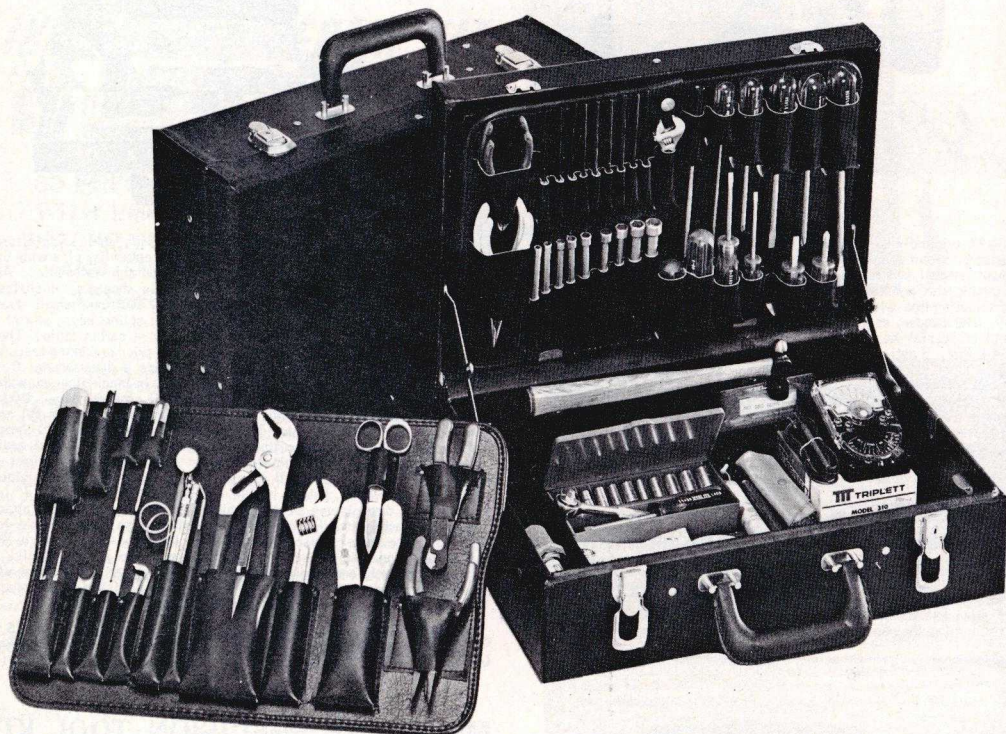
JENSEN PAYS THE SHIPPING CHARGES !



PRESENTING

JTK 17

MORE THAN 100 FINE TOOLS USED BY FIELD ENGINEERS FOR MAINTENANCE AND ADJUSTMENT OF ELECTRONIC EQUIPMENT, COMMUNICATIONS, RADAR, COMPUTERS, AND OFFICE MACHINES OF ALL KINDS.



Jensen JTK-17 tool kits include virtually every standard tool required in the field for maintenance of complex electronic and data processing equipment. Over 50 fastener tools are included (screwdrivers, nutdrivers, hex and spline drivers, wrenches and sockets). There are 7 pairs of pliers in the kits (from fine instrument dykes to a heavy-duty water-pump model). Not forgotten are a large number of special tools such as contact burnishers, spring tools, oiler, flashlight, dental mirror, and many other items (see list below). Most of the tools are mounted on two removable pallets. The pallets hold the tools securely in a well organized manner, yet at the same time present them to the view of the user. The deluxe 'attache' cases feature hardwood construction with llama-grain covering and solid brass hardware. Roomy compartments are provided in the bottoms of the cases for larger tools, special tools, and spare parts. Spaces for service manuals, schematics, and documents are provided in the covers. Four models are offered, differing principally in case style. Note attractive quantity prices for large industrial and government purchases.

THESE FINE TOOLS INCLUDED IN JTK-17 KIT

Allen-hex driver blade set, 9 pieces, .050- $\frac{3}{16}$ "
Alignment tool set, 2 multi-purpose tools
Burnishers, contact type, set of 3
Calculator, inch to metric
Center punch, $\frac{3}{32}$ " point
Crimping tool, with bolt cutter and stripper
Feeler gauge, 11 blades
Flashlight, 2-cell
Hammer, ball pein, 4 oz. head
Handle for hex, spline, and nutdriver blades, 3"
Handle for hex, spline, and nutdriver blades, 4"
Icepick-scribe
Knife, multi-purpose electrician's type
Mirror, dental type
Nutdriver blade set, 9 pieces $\frac{3}{16}$ to $\frac{1}{2}$ "
Oiler, long-reach instrument type
Pin-punch set, 2 pieces, $\frac{1}{16}$ and $\frac{1}{8}$ "
Pliers, diagonal cutter, 5"
Pliers, instrument type chain-nose, $\frac{4}{16}$ "

Pliers, long-nose with side cutter, 6"
Pliers, miniature cutters, $\frac{4}{16}$ "
Pliers, retaining ring, external
Pliers, retaining ring, internal
Pliers, utility power track, 10"
Rule, stainless 6", with wire gauge
Screwdriver, jeweler's, 6 blades .025-1"
Screwdriver, offset type, #6-#10 screws
Screwdriver, Phillips, #0, 2" blade
Screwdriver, Phillips, #1, 3" blade
Screwdriver, Phillips, #2, 4" blade
Screwdriver, Phillips stubby, #2, $1\frac{3}{4}$ " blade
Screwdriver, regular, $\frac{3}{16}$ ", 2" blade
Screwdriver, regular, $\frac{1}{4}$ ", 8" blade
Screwdriver, regular, $\frac{3}{8}$ ", 3" blade
Screwdriver, regular, $\frac{1}{2}$ ", 4" blade
Screwdriver, regular, $\frac{5}{8}$ ", 3" blade
Screwdriver, regular, $\frac{3}{4}$ ", 6" blade
Screwdriver, regular stubby, $\frac{1}{4}$ ", $1\frac{1}{4}$ " blade

Screwdriver, screwholding type
Scissors, electrician's type
Spline driver blade set, 6 pieces, .048-.096
Spring hook-pull tools
Soldering iron, 37 $\frac{1}{2}$ watts
Solder aid, fork and hook
Solder brush
Tweezers, reverse action, $\frac{4}{16}$ "
Wire stripper-cutter, adjustable stop
Wrench, adjustable, 4"
Wrench, adjustable, 8"
Wrench set, $\frac{1}{4}$ "-drive sockets with ratchet, spinner and extensions
Wrench set, open end
VOM test meter, 20,000 ohms per volt, 18 measurement scales (optional item)
Case, attache-type with removable tool pallets and compartments for parts and documents, chestnut brown llama grain covering with solid wood frame and brass hardware.

JTK-17 DELUXE CASE MODEL

This "industry standard" is the most popular of the JTK-17 tool kits. The tools are furnished in the popular 54B704 executive attache' case (may be purchased separately—see page 65). Color is walnut brown. Inside dimensions of the case are 18 x 12½ x 4¼ inches. Tens of thousands of these tool kits are in use throughout the world. Offered with and without Triplet 310 VOM test meter.

JTK-17 (DELUXE CASE MODEL) WITHOUT METER **\$210.00**
(In lots of 5-9, \$189.00 each. 10-49, \$168.00 each.)

JTK-17 (DELUXE CASE MODEL) WITH METER **\$260.00**
(In lots of 5-9, \$237.00 each. 10-49, \$215.00 each.)



JTK-17D DEEP CASE MODEL

This is the tool kit illustrated at left and on the cover of our catalog. The 54B716 deep case (see page 65) holds the basic complement of tools with plenty of room left over for test equipment and parts boxes. As is true with all Jensen cases, the individual tool pouches on the pallets have been carefully designed to match the electronic tools provided in the kit. Color of the case is black and the inside dimensions of the case are 17½ x 12 x 5½ inches. Available with or without Triplet 310 VOM test meter.

JTK-17D (DEEP CASE MODEL) WITHOUT METER **\$215.00**
(In lots of 5-9, \$194.00 each. 10-49, \$173.00 each.)

JTK-17D (DEEP MODEL) WITH METER **\$265.00**
(In lots of 5-9, \$242.00 each. 19-49, \$220.00 each.)



JTK-17MLD MOLDED CASE MODEL

This tool kit is packaged in the JENSEN 54B745 heavy-duty molded case (page 66). Made of ABS "Royalite" with fiberglass reinforced corners, this case withstands the shock and abuse of airline handling. Pallet arrangement for tools is the same as for deluxe case and deep case models above. Color is black. Inside case dimensions are 17½ x 12½ x 4¼ inches. Available with or without Triplet 310 VOM test meter.

JTK-17MLD (MOLDED CASE MODEL) WITHOUT METER **\$212.00**
(In lots of 5-9, \$190.00 each. 10-49, \$171.00 each.)

JTK-17MLD (MOLDED CASE MODEL) WITH METER **\$262.00**
(In lots of 5-9, \$237.00 each. 10-49, \$218.00 each.)

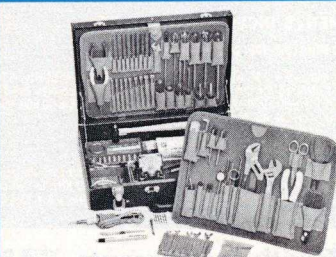


JTK-17MM METRIC TOOLS MODEL

This special version of the JTK-17 tool kit was designed for use by field engineers working on foreign equipment with metric-measure fasteners. The tools are identical to those furnished in other JTK-17 models above, except that the hex driver blades, nutdriver blades, socket set, ignition wrench set, feeler gauge, pin punches, and stainless rule are furnished in millimeter sizes rather than the normal fractional-inch sizes. Furnished in same 54B704 case as regular JTK-17. Available with and without Triplet 310 VOM test meter.

JTK-17MM (METRIC TOOLS MODEL) WITHOUT METER **\$249.00**
(In lots of 5-9, \$224.00 each. 10-49, \$199.00 each.)

JTK-17MM (METRIC TOOLS MODEL) WITH METER **\$299.00**
(In lots of 5-9, \$269.00 each. 10-49, \$239.00 each.)



INCH-METRIC CONVERSION SETS FOR ABOVE

METRIC TOOLS CONVERSION SET

A package of metric-measure tools (hex driver blades, nutdriver blades, sockets, ignition wrenches, feeler gauge, pin punches, and stainless rule). When added to any of the inch-measure JTK-17 tool kits above, allow the kit to be used with metric-measure fasteners as well as inch-measure fasteners. Tools packed in cardboard carton.

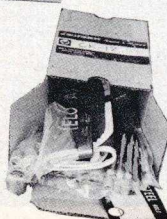
CK-17MM **\$57.50**



INCH TOOLS CONVERSION SET

A package of fractional inch-measure tools (hex driver blades, nutdriver blades, sockets, ignition wrenches, feeler gauge, pin punches, and stainless rule). When added to the JTK-17MM metric tool kit above, allows the kit to be used with inch-measure fasteners as well as metric-measure fasteners. Tools packed in cardboard carton.

CK-17 **\$37.50**



ELECTRONICS LAB KIT IN TWO CASES

JTK-27/37



INSTRUMENTS INCLUDED IN JTK-27

TRIPLET 310 MINIATURE VOLT-OHM-MILLIAMETER

An extremely compact V.O.M. with 20,000 ohms per volt DC sensitivity; 5,000 AC. Rugged construction—self shielded for use in strong magnetic fields. Measures 0-3-12-60-300-1,200 volts AC or DC; 0-20,000-200,000-2 megohms-20 megohms; 0-0.6-6-60-600 milliamperes DC. Accuracy $\pm 3\%$ DC, $\pm 4\%$ AC. Measures only $2\frac{1}{2} \times 4\frac{1}{4} \times 1\frac{1}{2}$ ".

KIKUSUI 539A 3" FIELD SERVICE OSCILLOSCOPE

Features vertical sensitivity 150 MV. p-p/cm. from 5 Hz. to 700 KHz. Horizontal sensitivity 1.5 V. p-p/cm. from 2 Hz. to 400 KHz. Sweep frequency 10 Hz. to 100 KHz. in four ranges. Has focus and astigmatism controls on rear panel. For 115 V.A.C. Measures $4\frac{1}{2} \times 8 \times 13\frac{1}{2}$ ".

The JTK-27 component is a deluxe version of the popular JTK-17 Field Engineer Tool Kit. The assortment of more than 100 tools is the same (see list of included items below), but the case is made extra deep to accommodate a 3" field-service oscilloscope and a compact VOM test meter (inside dimensions of case $18 \times 13\frac{1}{4} \times 7$ "). The tools included in this kit have been carefully chosen for field maintenance of complex electronic and data processing equipment. Most of the tools are mounted on the two removable pallets, yet at the same time present them to the view of the user. The extra-deep case (see page 66) accommodates test instruments, printed-circuit cards, parts boxes and larger tools that normally could not be carried in an attache' case. Additional test equipment that may be used with this kit is described in the instruments section of this catalog.

JTK-27 with instruments \$450.00 JTK-27 without instruments \$215.00

THESE FINE TOOLS INCLUDED IN THE JTK-27 TOOL KIT:

Allen-hex driver blade set, 9 pieces, .050- $\frac{3}{16}$ "
Alignment tool set, 2 multi-purpose tools
Burnishers, contact type, set of 3
Calculator, inch to metric
Center punch, $\frac{1}{8}$ " point
Crimping tool, with bolt cutter and stripper
Feeler gauge, 11 blades
Flashlight, 2-cell with magnet
Hammer, ball pein, 4 oz. head
Handle for hex, spline, and nutdriver blades, 3"
Handle for hex, spline, and nutdriver blades, 4"
Icepick-scribe
Knife, multi-purpose electrician's type
Mirror, dental type
Nutdriver blade set, 9 pieces $\frac{3}{16}$ to $\frac{1}{2}$ "
Oiler, long-reach instrument type
Pin-punch set, 2 pieces, $\frac{1}{8}$ " and $\frac{1}{4}$ "
Pliers, diagonal cutter, 5"
Pliers, instrument type chain-nose, $4\frac{1}{4}$ "

Pliers, long-nose with side cutter, 6"
Pliers, miniature cutters, $4\frac{1}{4}$ "
Pliers, retaining ring, external
Pliers, retaining ring, internal
Pliers, utility power track, 10"
Rule, stainless 6", with wire gauge
Screwdriver, jeweler's, 6 blades .025-1"
Screwdriver, offset type, #6-#10 screws
Screwdriver, Phillips, #0, 2" blade
Screwdriver, Phillips, #1, 3" blade
Screwdriver, Phillips, #2, 4" blade
Screwdriver, Phillips stubby, #2, $1\frac{1}{8}$ " blade
Screwdriver, regular, $\frac{3}{16}$ ", 2" blade
Screwdriver, regular, $\frac{1}{4}$ ", 6" blade
Screwdriver, regular, $\frac{1}{2}$ ", 3" blade
Screwdriver, regular, $\frac{3}{4}$ ", 3" blade
Screwdriver, regular, $\frac{1}{2}$ ", 6" blade
Screwdriver, regular stubby, $\frac{1}{4}$ ", $1\frac{1}{4}$ " blade

Screwdriver, screwholding type
Scissors, electrician's type
Spline driver blade set, 6 pieces, .048-.096
Spring hook-pull tool
Soldering iron, 37 $\frac{1}{2}$ watts
Solder aid, fork and hook
Solder brush
Tweezers, reverse action, $4\frac{1}{4}$ "
Wire stripper-cutter, adjustable stop
Wrench, adjustable, 4"
Wrench, adjustable, 8"
Wrench set, $\frac{1}{4}$ "-drive sockets with ratchet, spinner and extensions
Wrench set, open end
VOM test meter, 20,000 ohms per volt, 18 measurement scales (optional item)
Case, attache-type with removable tool pallets and compartments for parts and documents, chestnut brown llama grain covering with solid wood frame and brass hardware.

Two new tool kits bring total portability to the electronics laboratory. Kit JTK-27 includes more than 100 tools carefully selected for maintenance of all types of electronic equipment, computers, and business machines. Its extra-deep case also holds a 3" field oscilloscope and a VOM test meter, with room to spare. Kit JTK-37 supplements the JTK-27 by adding 30 heavy-duty tools designed primarily for metal working and breadboard construction. Purchased together, the JTK-27/37 constitutes a complete assortment of tools and basic instruments for the field repair shop, research laboratory or school physics or vocational education department. At the end of each working day the tools can be returned to their "executive" attache' cases and transported to the next job or stored in a volume of less than two cubic feet. The kits may be purchased individually or together, with or without the instruments.

JTK-37



- THESE SUPPLEMENTARY TOOLS INCLUDED IN JTK-37 KIT**
- Drills, high-speed, set of 14 from 1/8 to 3/4" in metal case
 - Electric drill, 1/4" chuck
 - Extension for "98" tools, 7"
 - File, flat, rough, 6"
 - File, flat, smooth, 6"
 - File handle
 - File set, needle-type, 8 pieces
 - Fuse puller
 - Hacksaw, 12"
 - Hemostat clamps, 6" straight
 - Hole punches, set of 4, 1/4 to 1 1/4"
 - Lamp, high intensity, miniature
 - Magnet tool, pocket type, 6"
 - Magnifying glass, pocket type
 - Pliers, electricians type, 8"
 - Reamer, hand type, 1/2"
 - Solder removal bulb
 - Soldering-iron sponge and tray
 - Square, combination type, 12"
 - Tape measure, 1/4", 10' long
 - Tap tool, 6-32/8-23/10-32
 - Twoezers, plastic, 4 1/2"
 - Vise, vacuum type, 2 1/2" jaws
 - Voltage tester, 80-550 V.
 - First aid kit, pocket type
 - Case, attache-type with removable tool pallet, 17 1/4 x 11 1/4 x 5 1/2" inside

The JTK-37 component is used with the JTK-27 tool kit (described at left) or the JTK-17 kit (described on page 56). This supplementary kit includes a vacuum vise, hacksaw, electric drill, socket punches, files, and more than 25 other metal-working tools not furnished in the JTK-17 and JTK-27 field engineer kits. The range of jobs that can be handled by the user of the two kits is greatly expanded. Major modifications as well as original construction are entirely feasible. The JTK-37 tools are housed in a deluxe attache' case (17 1/4 x 12 x 5 1/2") with one tool pallet and lots of room for additional parts and special tools.

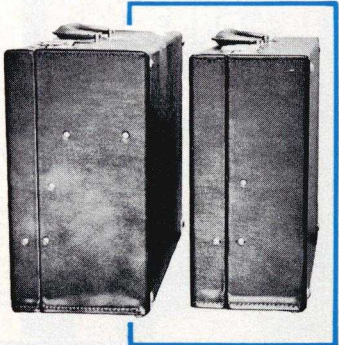
JTK-37 \$198.00

JTK-27/37 ELECTRONICS LAB KIT

The JTK-27/37 combination is offered at a substantial saving over the prices of the components purchased alone. In addition, it may be purchased with or without the instruments. Quantity prices are also offered to firms and agencies employing many service engineers or technicians. Give your technical personnel the "executive" look today. They'll thank you for it in on-the-job results.

JTK-27/37	Both kits as illustrated with instruments shown.
1-4 kits	\$585.00
5-9 kits	555.00
JTK-27/37	Both kits as illustrated, but without oscilloscope and test meter.
1-4 kits	\$372.00
5-9 kits	354.00

(NOTE: If purchased separately, Kikusui oscilloscope is priced at \$179.00.)



INTRODUCING JTK-77 *Deluxe* FIELD ENGINEER TOOL KIT

- MORE THAN 120 TOOLS
- NEW, EXTRA-DEEP TOOL CASE WITH 3 PALLET SURFACES
- PARTS BOXES INCLUDED



JENSEN field engineer tool kits have that "executive" look. They give service employees front-door access to the equipment they are charged to maintain. Gone forever are old-fashioned tool boxes, bags, and paper cartons. Included are those frequently overlooked but vital accessories needed to get the job accomplished in a hurry—burnishers, spring tools, oilers, scissors, mirrors, alignment tools, pin punches—plus the normal complement of pliers, screwdrivers, wrenches and soldering aids.

JTK-77, newest and finest of the JENSEN family of tool kits, includes more than 120 carefully selected tools and work accessories, plus an optional test meter. The basic complement of tools is the same as furnished in the popular JTK-17 tool kit (page 56), but more than 20 additional items have been added to greatly expand the versatility of this kit. Included are cleaning brushes, hemostat, heat sinks, desoldering tool, slide caliper, Vise-Grip pliers, lamp extractor, hand vise, lead bender, and many other useful items.

The new case 54B720 (may be ordered separately) measures 17 1/4 x 12 x 6 1/2" inside—a full inch deeper than similar cases. A permanently-affixed pallet in the lid provides additional pockets to hold the less-frequently used tools. In the normal carrying position the regular upper pallet covers the lid-mounted tools. In use this pallet is easily folded down to expose the lid-mounted tools when they are needed by the operator. The individual tool pouches on the pallets have been carefully designed to match the electronic tools provided in the kit.

A pair of unbreakable plastic parts boxes is provided with this kit. A Triplett model 310 V.O.M. test meter is available as an optional accessory. This new kit JTK-77 has been designed to complement the JTK-37 lab kit (page 59), which includes tools for metalworking and breadboard construction.

See page 56 for list of basic tools included in this kit.

JTK-77 INCLUDES ALL JTK-17 TOOLS LISTED ON PAGE 56 PLUS THE FOLLOWING ITEMS

Brush, brass
Brush, bristle, typewriter
Burnisher, pocket type
Component lead cleaner
Hand vise
Heat sink, heavy duty
Heat sink, medium duty
Hemostat pliers, 5" curved
Ignition pliers, 4 1/2"
Lamp extractor
Lead bending gauge

Parts boxes (pair)
Phillips-type screw starter, 9"
Plastone file, coarse
Plastone file, fine
Plastone file, polish
Slide caliper, 6"
Soldapull tool
Spring adjuster set, 2 pieces
"T" handle for driver blades
Vise-Grip pliers, 7"
VOM test meter (optional)

JTK-77 TOOL KIT WITHOUT METER \$245.00

In quantities of 5-9, \$219.00 each
In quantities of 10-49, \$195.00 each

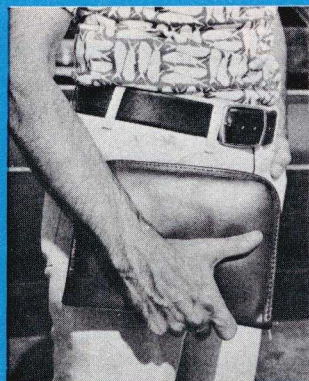
JTK-77 TOOL KIT WITH METER \$295.00

In quantities of 5-9, \$267.00 each
In quantities of 10-49, \$243.00 each

EXTRA-DEEP CASE ONLY

New, extra-deep case with three pallet surfaces, as described above. Inside dimensions 17 1/4 x 12 x 6 1/2". Walnut brown color. In lots of 5-9, \$58.00 each. In lots of 10-49, \$52.00 each.

54B720 \$66.00

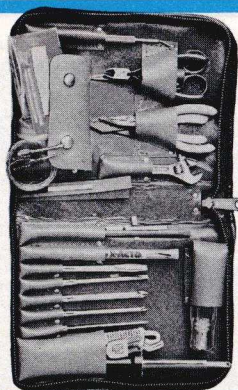


JENSEN JTK-6 "AGENT" TOOL KIT

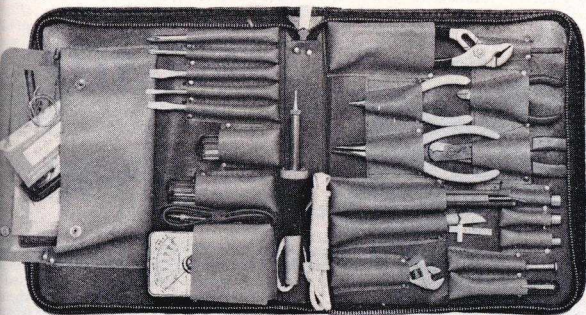
A new 24-piece pocket-size kit of electronic tools for engineers, scientists, technicians, students, executives—anyone who might suddenly be required to dismantle or service electronic equipment. Includes 7 sizes screwdrivers, adjustable wrench, 2 pair pliers, wire stripper, knife, 2 alignment tools, stainless rule, hex-key set, scissors, 2 flexible files, burnisher, miniature soldering iron, solder aid, coil of solder, and desoldering braid. Highest quality padded zipper case measures approximately 6 x 9 x 1 1/4" inside.

JTK-6 TOOL KIT \$49.00
(In lots of 5-9, \$44.00 each. In lots of 10-49, \$39.00 each.)

54B956 (WG-1) CASE ONLY .. \$14.00



COMPACT "DETECTIVE" TOOL KIT JTK-16



FOR THE FIELD ENGINEER, ELECTRONIC TECHNICIAN, RADIO-TV REPAIRMAN

The JTK-16 is one of our most popular tool kits. It was designed for the professional electronic technician or field engineer requiring a complete set of tools in a compact package. Multi-purpose tools have been furnished where possible, and those essential "secondary" tools have not been forgotten. Basic screwdrivers in the kit are from the Xcelite "99" series (see page 63), allowing additions to meet particular requirements. The kit is available with or without Simpson miniature VOM multi-purpose tester. The tools are furnished in an attractive padded zipper case measuring 11½ x 10".

JTK-16 WITH SIMPSON NO. 355 VOM MINIATURE TESTER \$124.00
JTK-16, AS ABOVE, BUT WITHOUT METER 69.00

THESE FINE TOOLS INCLUDED IN JTK 16

Description	Mfr.
Screwdriver blade, 3/16" regular	Xcelite
Screwdriver blade, 1/4" regular	Xcelite
Screwdriver blade, 5/16" regular	Xcelite
Screwdriver blade, #1 Phillips	Xcelite
Screwdriver blade, #2 Phillips	Xcelite
Screwdriver, jeweler's type, with blades from .025 to 0.1"	Telvac
Screwdriver, #0 Phillips	Xcelite
Nutdriver blade, 1/4"	Xcelite
Nutdriver blade, 5/16"	Xcelite
Nutdriver blade, 3/8"	Xcelite
Wrench, adjustable, opens to 1/2"	Diamond
Wrench set, Allen-hex, 10 pieces	Telvac
Wrench set, Bristol-spline, 10 pieces	Telvac
Pliers, utility-type, open to 1-1/16"	Diamond
Pliers, long-nose side cutting, 6-1/2"	Klein
Pliers, miniature side cutting, 4"	Klein
Pliers, chain-nose 4"	Klein
Wire stripper, with adjustable stop	Hunter
Plastic handle, multi-purpose, 3"	Xcelite
Plastic handle, multi-purpose, 4"	Xcelite
Knife, precision-type	X-Acto
Saw blade for knife, keyhole type	X-Acto
Scale, 6" stainless	General
Soldering iron	
Solder, 60/40, small coil	Kester
Solder aid, miniature, fork and hook	Hunter
Burnisher for relay contacts	Telvac
Alignment tool set, two tools	G.C.
File, flat needle type, 6-1/4"	Telvac
Case, zipper type, 9-1/2 x 11-1/2"	Jensen

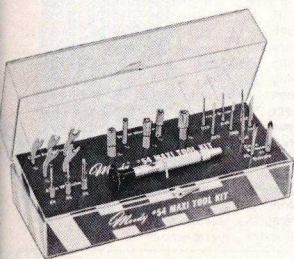
(In lots of 5-9, \$115.00 ea. 10-49, \$107.00 ea.)
(In lots of 5-9, \$ 62.00 ea. 10-49, \$55.00 ea.)

Moody Master Kit

WITH 30 INTERCHANGEABLE TOOLS

An extremely popular compact kit of six tool sets for use on small electronic assemblies, instruments, and many types of machinery. A total of 30 interchangeable heat-treated tools are supplied, along with six solid-locking chuck handles. A handsome leatherette case stores the six tool sets. Included in the kit are five screwdriver blades .055 to .100", an awl, #0 and #1 Phillips-type screwdriver blades, #4, #6, #8, Allen-type blades, five socket wrenches from 5/64 to 5/32", five open-end wrench blades from 5/64 to 5/32", five tap drills (3/64", #53, #50, #47, and #43), five miniature taps (0-80, 1-72, 2-56, 3-48, and 4-40), and six chuck handles for the various tools and blades. The case measures only 1½ x 3½ x 8".

41B335 \$32.50
(In lots of 10, \$29.00 each)



Moody

SUBMINIATURE TOOL SET

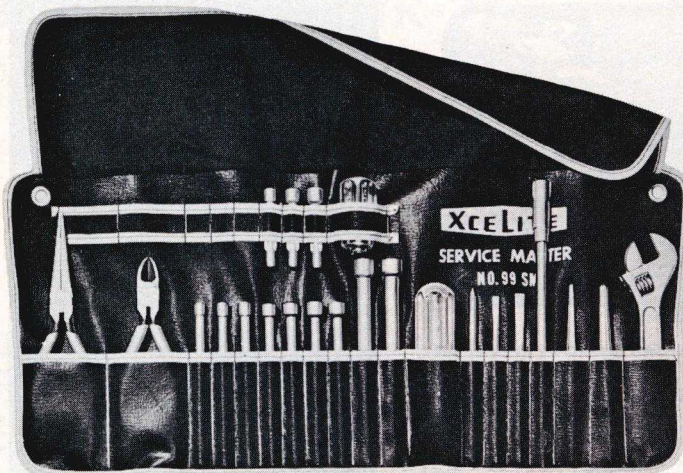
A new set of 22 tiny instrument tools. Used by model makers, horologists, instrument repairmen and hobbyists who work with very small machine screws, set screws, and nuts. The set includes six jeweler's type screwdrivers (in sizes .025 through .100"), two Phillips-type drivers in sizes 0 and 1, five open-end wrenches (in sizes 5/16 through 5/32"), three Allen-hex type wrenches (in sizes 4, 6, and 8), five socket wrenches (in sizes 5/64 through 5/32"), a marking scribe, and a knurled chuck-type handle. The tool-steel blades are correctly heat treated and nickel plated. The interchangeable tools and handle are furnished in a clear plastic box.

Model 54 \$ 12.95

NOW YOU CAN CHARGE IT!



XCELITE "99" SERIES KITS AND SETS

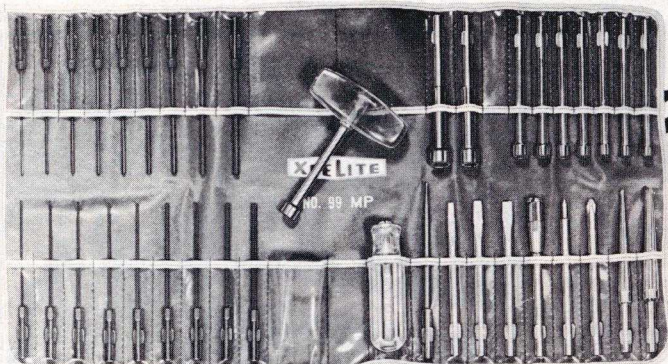


XCELITE

99SM SERVICE MASTER KIT

A versatile 23-piece set of quality Xcelite tools in a durable canvas roll pouch. Weighs only 2 3/4 pounds and can easily be carried in an existing tool box or stored in a workbench drawer. The set includes a 6" long-nose plier, 5" diagonal cutter, 6" thin-pattern adjustable wrench, regular handle, stubby handle, a set of 9 nutdriver blades 3/16" to 1/2", stubby nutdrivers 1/4" through 3/4", a Phillips screwdriver blade, 2 slotted screwdriver blades, 2 reamers, and a 7" extension blade. This is an excellent starter set to which can be added additional "99" tools from the following page.

99SM \$ 36.8



99MP FASTENER TOOL KIT

This kit emphasizes fastener tools (no pliers or wrenches), allowing work on a wide variety of apparatus. This roll pouch set is an excellent supplementary item for an existing general purpose tool kit. Included in the 99MP are a regular handle, "T" handle, 1 nutdriver blades 3/16" through 1/2", 9 Allen-head blades .050 through 3/4", 9 Bristol multiple spline blades .048 through .183, 3 slotted screwdriver blades, 2 Phillips screwdriver blades #1 and #2, 2 reamers, an awl/scribe and a 4" extension. All of these fine tools are furnished in a canvas roll pouch. If you want to be sure you have the right fastener tool for most any job, add this set to your existing range of tools.

99-MP \$ 37.6

99PR ROLL KIT



A smaller roll kit for the serviceman or kit builder. Includes a regular handle, 9 nutdriver blades 3/16" to 1/2", 2 slotted screwdriver blades, 2 Phillips blades, and a compact canvas roll case.

99PR \$ 12.55

99PS-50 POCKET KIT

This kit is similar to the 99PR kit at left, but instead of a roll pouch it comes in a see-through plastic case that also serves as a bench stand. Included are a regular handle, 7 nutdriver blades 3/16" through 3/4", 2 slotted screwdriver blades, 2 Phillips screwdriver blades #1 and #2, and a 4" extension. This convenient kit can be kept in your tool box, desk drawer, or auto glove compartment. Handles most service requirements nicely.

99PS-50 \$ 11.6

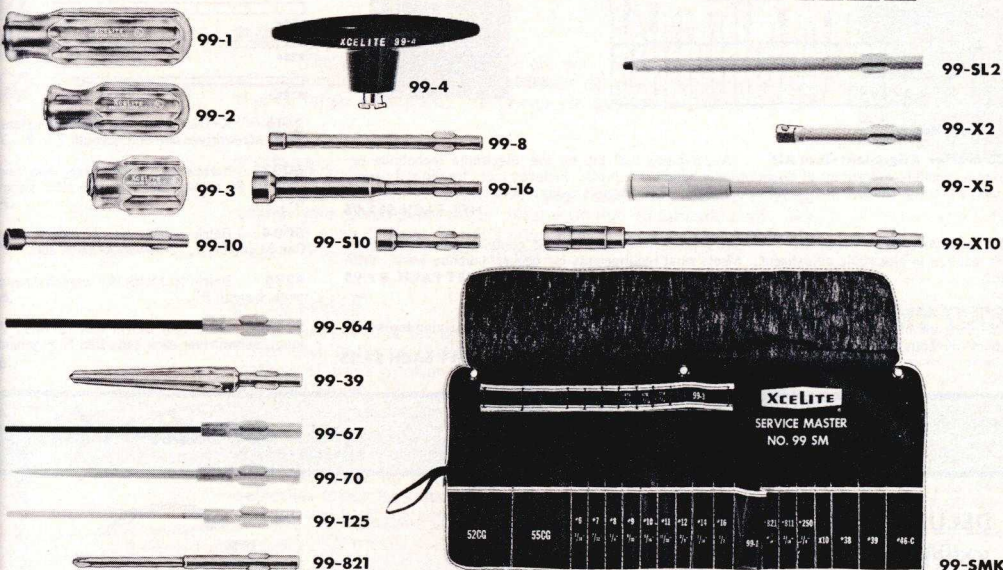


SERIES "99" INTERCHANGEABLE TOOLS



Interchangeability is the magic word describing Xcelite's "99-Series" tools. Engineers and technicians in increasing numbers are switching to these tools because (1) they can be selected to exactly match the work being done, at lowest cost with minimum size and weight. (2) Replacement of worn-out tools is quick and cheap, as only the blades

need be thrown away. (3) Handle and extension versatility (large, small, short, long, "T", or ratchet) is extended to every blade (inch, metric, spline, hex, magnetic, nutdriver, etc., etc.). Start with one of the basic "99" tool kits described on the previous page. Then add the special tools needed in your work as you need them.



All blades are high carbon steel with highly polished nickel chrome finish (except Allen hex type). Handles are Xcelite amber (U/L) plastic, with a patented spring device that holds blades firmly yet permits quick, easy insertion and removal. Regular handle takes all blades, single and reversible. Junior, stubby, and "T" handles can be used only with single-ended blades.

Cat. No.	Description	Net Each
99-1	Handle, regular, 4 1/4" long	\$1.00
99-1R	Handle, ratchet, 4 1/4" long	6.60
99-2	Handle, junior, 3 1/8" long	.96
99-3	Handle, stubby, 2" long	.92
99-4	Handle, "T" style, 1" by 3 3/8"	1.32
99-4R	Handle, ratchet "T", 1" by 3 3/8"	6.60
99-5	Nutdriver, 3/32"	.92
99-6	Nutdriver, 1/8"	.92
99-7	Nutdriver, 1/4"	.92
99-8	Nutdriver, 1/2"	.92
99-8M	Nutdriver, stubby 1/4"	1.48
99-9	Nutdriver, magnetic-type, 1/4"	.92
99-10	Nutdriver, 3/8"	.92
99-10M	Nutdriver, stubby 3/8"	.76
99-11	Nutdriver, magnetic-type, 3/8"	1.48
99-12	Nutdriver, 1 1/2"	.92
99-12	Nutdriver, 3/4"	.92
99-12	Nutdriver, stubby 3/4"	.76
99-14	Nutdriver, 7/8"	1.12
99-16	Nutdriver, 1 1/2"	1.12
99-4MM	Nutdriver, 4mm	1.08
99-4.5MM	Nutdriver, 4.5mm	1.08
99-5MM	Nutdriver, 5mm	1.08
99-5.5MM	Nutdriver, 5.5mm	1.08
99-6MM	Nutdriver, 6mm	1.08
99-7MM	Nutdriver, 7mm	1.08
99-8MM	Nutdriver, 8mm	1.08
99-9MM	Nutdriver, 9mm	1.08
99-20	Screwdriver, Allen hex, .050"	.84
99-21	Screwdriver, Allen hex, 1/16"	.84
99-22	Screwdriver, Allen hex, 3/32"	.84
99-23	Screwdriver, Allen hex, 1/8"	.84
99-764	Screwdriver, Allen hex, 3/16"	.84
99-24	Screwdriver, Allen hex, 1/4"	.84
99-964	Screwdriver, Allen hex, 5/16"	.84
99-25	Screwdriver, Allen hex, 3/8"	.84
99-26	Screwdriver, Allen hex, 1/2"	.84

Cat. No.	Description	Net Each
99-38	Reamer, 1/4" to 3/8"	\$2.40
99-39	Reamer, 1/4" to 1/2"	3.00
99-61	Screwdriver, Bristol spline, .048-4	.84
99-62	Screwdriver, Bristol spline, .060-6	.84
99-63	Screwdriver, Bristol spline, .069-4	.84
99-64	Screwdriver, Bristol spline, .072-6	.84
99-65	Screwdriver, Bristol spline, .076-4	.84
99-66	Screwdriver, Bristol spline, .096-6	.84
99-67	Screwdriver, Bristol spline, .111-6	.84
99-68	Screwdriver, Bristol spline, .145-6	.84
99-69	Screwdriver, Bristol spline, .183-6	.84
99-70	Scriber-awl, 4 1/2"	.96
99-71MM	Screwdriver, Allen hex, 1.27mm	1.08
99-72MM	Screwdriver, Allen hex, 1.5mm	1.08
99-73MM	Screwdriver, Allen hex, 2mm	1.08
99-74MM	Screwdriver, Allen hex, 2.5mm	1.08
99-75MM	Screwdriver, Allen hex, 3mm	1.08
99-76MM	Screwdriver, Allen hex, 4mm	1.08
99-77MM	Screwdriver, Allen hex, 5mm	1.08
99-83	Screwdriver, R & P, 3/4" and 1/2"	1.60
99-84	Screwdriver, Clutch, 3/4" and 1/2"	1.60
99-125	Screwdriver, regular slot, 1/4"	.92
99-250	Screwdriver, regular slot, 3/8"	.92
99-312	Screwdriver, regular slot, 1/2"	.92
99-811	Screwdriver, regular slot, 5/8"	.92
99-820	Screwdriver, Phillips #0	.92
99-821	Screwdriver, Phillips #1	.92
99-822	Screwdriver, Phillips #2	.92
99-PAL	Nutdriver, PALNUT, 3/8" and 1/2"	3.12
99SL-0	Screwdriver, Sculox #0	.92
99SL-1	Screwdriver, Sculox #1	.92
99SL-2	Screwdriver, Sculox #2	.92
99SL-3	Screwdriver, Sculox #3	.92
99-X2	Adapter to 1/4" drive (male)	.72
3B029	Adapter to 1/4" drive (female)	1.45
99-X5	Extension blade (adds 4")	1.32
99-X10	Extension blade (adds 7")	1.44
99-SMK	Case, canvas, for Service Master Kit	3.80

JENSEN PAYS THE SHIPPING CHARGES!

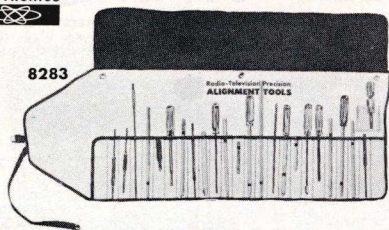


TOOL KITS

alignment



ALIGNMENT TOOL KITS



8283 Master Alignment-Tool Kit A 25-piece tool kit for the electronic technician requiring a complete assortment of alignment and adjustment tools. Includes tools for virtually every i-f can, r-f coil, trimmer, and potentiometer used in electronics today. With case.

NET EACH \$17.95

8455 Basic Alignment-Tool Kit A 9-piece alignment tool kit containing the "essential" tools required in electronic adjustment. Meets most requirements for general purpose work. With case.

NET EACH \$7.95

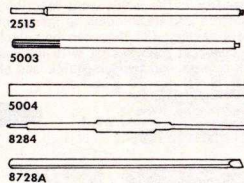
580 TV-FM Alignment-Tool Kit

A 13-piece kit of tools specially selected for TV and FM work. Includes neutralizing tools, i-f aligners, K-Tran tools, slug and turret tools. (In leatherette case, not illustrated).

NET EACH \$9.25



ALIGNMENT TOOLS



2515 K-Tran tool has low-capacitance metal screwdriver one end. Length 7". \$.73

5003 Narrow 1/8" screwdriver one end. Hole for #6 screw other end with nib. Length 6". .79

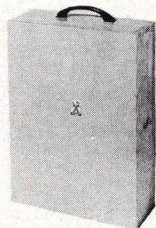
5004 Delrin screwdriver 7" long 1/8" dia. Can be reground. Screwdriver each end. .73

8284 Delrin tool with hex wrench on each end. Length 5". .67

8728A Extra-thin Delrin tool 1/8" dia. 7" long. Screwdriver each end. Can be reground. .67

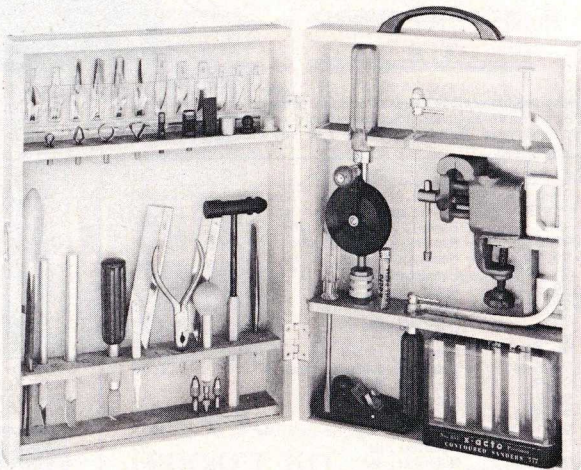
woodworking

DELUXE TOOL AND KNIFE CHEST #89



USED FOR MAKING WOODEN MOCKUPS, MODELS, AND SCALED VERSIONS OF ELECTRONIC PACKAGES AND COMPONENTS

\$49.50 EACH



In addition to the sturdy all wood carrying case, this deluxe woodworking kit includes 4 routers, 6 gouges, 2 punches, 2 razor saw blades, coping saw with extra blade, block planer, light-duty knife and blade, medium-duty knife and blade, heavy-duty knife, assorted blades, hammer, hand drill, contoured sander set, file handle with 3 needle files, bench vise, 2 "C" clamps, pin vise with 2 chucks, plus tweezer, long-nose plier, heat sink, screwdriver, jewelers screwdriver, screwdriver bits, and 3 drill bits. A copy of the X-Acto booklet, "Project Handbook and Tool Guide" is included.

CAT. NO. 89. NET EACH \$49.50

COMPACT TOOL AND KNIFE CHEST #87

A smaller version of the #89 deluxe kit. Contains most of the tools needed for producing wooden mockups and models. This kit includes a light-duty knife, medium-duty knife, heavy-duty knife, complete assortment of knife blades, gouges, routers, punches, plus a planer, sander, saw, spokeshave, a balsa stripper, steel rule, pin vise, screwdriver, and assorted drill bits. Packed in a fitted wood chest.

CAT. NO. 87. NET EACH \$27.50

\$27.50



JENSEN TOOLS and ALLOYS

4117 N. 44th Street, Phoenix, Arizona 85018

TOOL CASES

attache

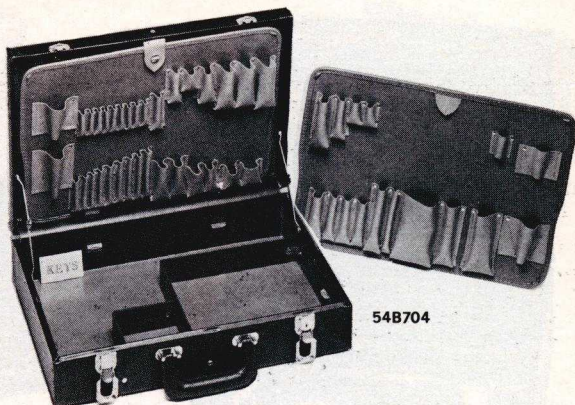
Famous the World Over!

JENSEN DELUXE CASE

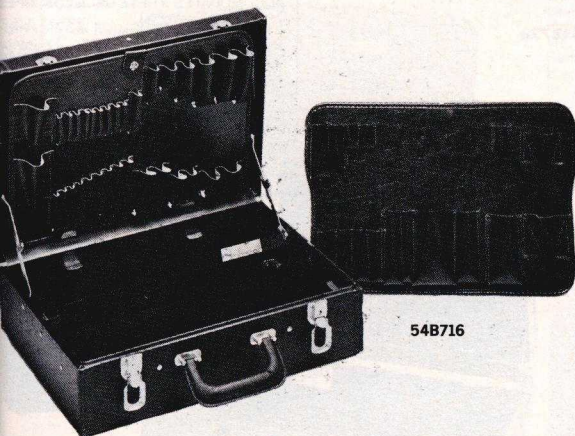
Thousands of these cases are in use today by field engineers stationed throughout the world. There has been no sacrifice in quality—this is not a compromise or economy design. The Jensen case features a solid wood frame with mahogany paneling and dovetail corners. Covering is walnut brown, flame-grain heavy-gauge Marvelon (virtually a scuff-proof material with the rich look of top grain leather). Other outstanding features include deep rust-proof reinforcing valances; anodized aluminum partitions; padded steel-core matching handle; solid brass lid-stay protectors, hinges, and drawbolt locks. Partitioned compartments in the bottom of the case hold large tools, test meter, parts boxes. A special pocket is provided in the lid for manuals and schematics. The two removable pallets hold more than 50 separate tools. This outstanding case has inside measurements of 18 x 12½ x 4¼". This is the same case furnished for the JTK-17 tool kit.

54B704 \$ 54.00

(In lots of 4-9, \$48.00 each, 10-49, \$42.00 each)



54B704



54B716

JENSEN DEEP DELUXE CASE

This case is for the engineer who cannot find room in a normal-size case for all of his tools, parts, cleaning cloths, oils, and instruction manuals. The extra depth allows for many more and larger items than the case above. General construction, pouch arrangement and quality are the same as for the normal-size case. The lid has two pockets for reports, manuals, schematics, etc. The color of this case is black. Inside dimensions are 17¼ x 12 x 5½".

54B716 \$ 59.00

(In lots of 4-9, \$53.00 each, 10-49, \$47.00 each)

SINGLE PALLET DEEP CASE

Same dimensions as above, but furnished with only one special pallet, which holds a hacksaw and other larger tools. This case is used for the JTK-37 tool kit (see p. 59). The color is walnut brown.

54B738 \$ 49.00

JENSEN COMPACT "THIN-LINE" CASE

This smaller case, sometimes known as the "supervisor" case, holds a surprising number of tools, despite its compact size. It is preferred by inspectors, engineers, or technicians who use fewer or smaller tools in their normal work. Quality of construction is the same as the deluxe cases described above. The solid wood frame has mahogany paneling with dovetail corners. The covering is heavy-gauge scuff-proof Marvelon. Hardware is solid brass. This case has just one pallet, but it holds more than 30 separate small tools. The pouches on this pallet match the JTK-90 tools (see page 54). There is a compartment in the cover for forms, schematics, and service manuals. The bottom of the case is divided into four partitioned compartments for larger tools, parts boxes, or test instruments. The color of this case is black. Inside dimensions for the "thin-line" case are 16¼ x 11¼ x 3¼".

54B717 \$ 45.00

(In lots of 4-9, \$40.00 each, 10-49, \$36.00 each)

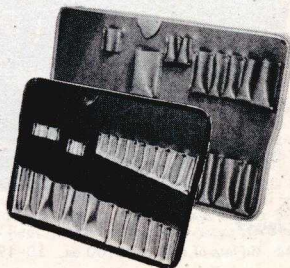


54B717

REPLACEMENT TOOL PALLETS FOR JENSEN ATTACHE' CASES

Replacement pallets are available for all Jensen attache' cases. These pallets are also purchased for use in regular brief cases and suitcases, or for mounting on workbench or pegboard.

Pallet Cat. No.	Type	Used In	Color	Nominal Dimensions	Price Each
54B904	Upper	54B704	Brown	12¼ x 17½	\$11.00
54B905	Lower	54B704	Brown	12¼ x 17½	11.00
54B916	Upper	54B716	Black	11¼ x 16	11.00
54B917	Lower	54B716	Black	11¼ x 17	11.00
54B923	Upper	54B717	Black	11½ x 16¼	11.85
54B935	Upper	54B738	Brown	12¼ x 16½	13.50
54B936	Upper	54B728	Brown	13 x 17¼	11.00
54B937	Lower	54B728	Brown	13 x 17¼	11.00
54B918	Upper	54B745	Black	12¼ x 17½	11.00
54B919	Lower	54B745	Black	12½ x 18	11.00

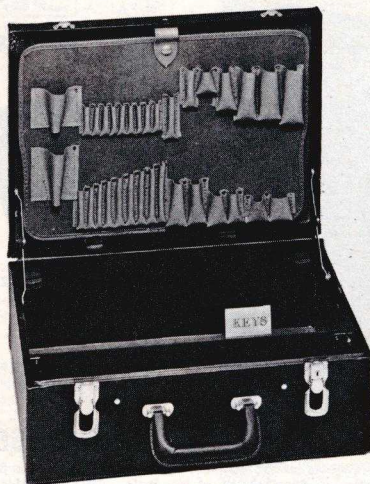


JENSEN PAYS THE SHIPPING CHARGES!



TOOL CASES

attache'



548728

JENSEN EXTRA-DEEP CASE

There is no other case quite like this one. Length, width, and general construction are the same as the Jensen deluxe case. The inside depth, however, is a full seven inches. This over-size case will accommodate a sm oscilloscope and other test equipment, printed circuit cards, large tools, or a dozen or more parts boxes. The two removable tool pallets are the same as furnished in the Jensen deluxe case, holding up to 60 items. There are two deep partitioned compartments in the bottom of the case and a pocket in the cover for schematics and other documents. Color is walnut brown. Inside dimensions are 18 x 13 3/4 x 7". This is the same case furnished with the JTK-27 field engineer tool kit (see page 58).

548728\$62.00

(In lots of 4-9, \$56.00 each, 10-49, \$49.00 each.)

ACCOMMODATES THESE OSCILLOSCOPES

Leader LB0-31M, Kikusui 539A, Tektronix 211, Tektronix 323, Tektronix 324, Field Tech MSB-100, Vu-Data PS920A, and many others.

JENSEN MOLDED CASE

This case was designed to satisfy field engineers who must frequently check their tools through to destination as airline baggage. Molded construction withstands the shock and abuse of automatic luggage-handling equipment. Otherwise, the case is functionally the same as the Jensen Deluxe Case, with two removable pallets holding up to 60 tools. Two compartments are provided in the bottom of the case for larger tools and test meter, and there is a document pocket in the cover. Heavy bumper feet on the rear of the case prevent scratching of desk tops or equipment. Color is black with satin metal trim. Inside dimensions are 17 3/4 x 12 1/2 x 4 3/4".

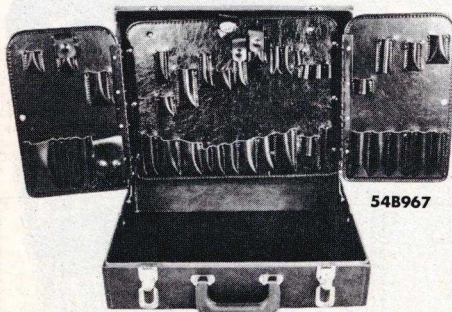
548745\$56.00

(In lots of 4-9, \$49.00 each, 10-49, \$45.00 each.)



548745

WING PALLET TOOL CASES

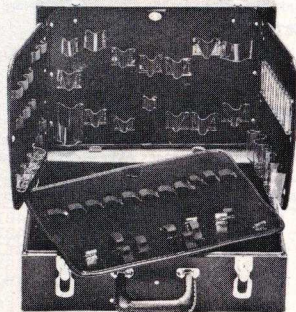


548967

548967\$55.00

(In lots of 4-9, \$49.00 ea. 10-49, \$43.00 ea.)

The unique, removable top pallets in these cases have fold-out wings to hold many additional tools. 548967 is a single-pallet case measuring 18 1/2 x 13 1/2 x 5" outside. Color olive. 38342 is a two-pallet deep case measuring 19 1/2 x 13 1/2 x 6 3/4". Color brown. Both cases have literature pockets in lid, plus room in the bottom of the case for parts boxes and larger tools. Same finest quality features as for the Jensen Deluxe cases described on p. 65.



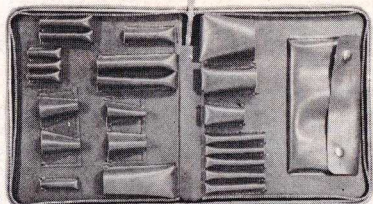
38342

38342\$75.00

(In lots of 4-9, \$65.00 ea. 10-49, \$58.00 ea.)

PADDED ZIPPER CASES

WG-2

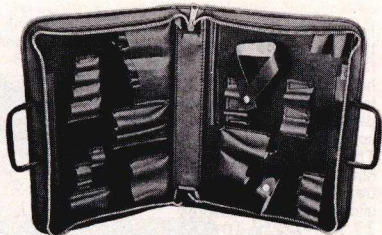


Deluxe zipper cases with foam-padded sides to protect tools and maintain shape. WG-1 has 15 pouches (holds the JTK-6 tools - p. 60) and measures 6 x 9 x 1-3/4" inside. WG-2 has 22 pouches (holds the JTK-16 tools - p. 61) and measures 11-1/2 x 10 x 1-1/2". WG-3 has 40 pouches (holds the JTK-64 tools - p. 31) and measures 12 x 10 x 2-3/8". These cases extremely popular with tech reps.

548956 (WG-1)	\$14.00
548952 (WG-2)	18.00
548954 (WG-3)	22.50

(In lots of 10, deduct \$2.50 from above prices)

LEATHER ZIPPER CASE

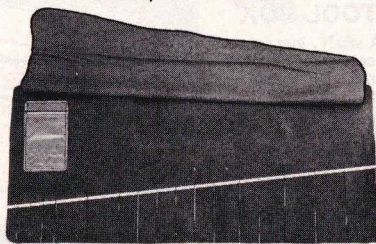


A beautiful executive tool case made of genuine top-grain leather. Everything about this case is deluxe, from the rich olive exterior to the rugged 3/4" zipper. Thirty-one pockets and two loop belts are provided to hold a variety of electronic, adjusting and inspection-type tools. Inside dimensions of this outstanding case are 14 1/2 x 10 1/4 x 2". Handles collapse flush into the case for under-arm carrying.

548749	\$ 39.00
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(In lots of 10 cases, \$33.50 each.)

CANVAS ROLL POUCH



An extremely popular tool roll with 17 pockets for "electronic" tools—screwdrivers, pliers, soldering irons. There is also a see-through pouch for small parts and hardware. A soft cloth flap folds down over the tools to prevent scratching. Case material is tough vinyl-covered canvas. Dimensions are 27 1/2 x 13". An elastic band holds the pouch in rolled position. This is the pouch used for the JTK-80 kit, and it fits nicely in tool box, desk drawer, or brief case.

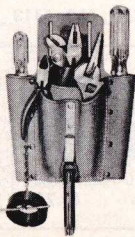
238740	\$ 5.95
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XCELITE

TOOL HOLSTER

Used by electricians, sound and burglar alarm installers, linemen. This Xcelite holster is made of genuine saddle leather. It has five pockets for screwdrivers, pliers, wrenches plus a tape holder and a knife clip. (Tools shown in illustration not included.)

150	\$ 9.35
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TELEPHONE REPAIRMAN'S CASE

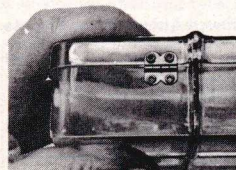


Western Electric Part No. AT8190. This rugged vulcanized fibre case is designed for hard usage and long life. Moisture can pass through the case to eliminate rust accumulation on tools. Fixed pallets are made of olive-colored sewn canvas. Hardware is brass plated. Corners are metal reinforced. The handle is leather. Case color is black. Outside dimensions 16 x 13 1/2 x 6". Although not comparable in appearance to our deluxe cases shown on pages 65-66, this case is highly functional and low in cost. It was made to be "banged around" and used in environments that would be unfavorable for executive type cases.

126B819	\$32.95
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(In lots of 4-9, \$28.50 each. In lots of 10-49, \$25.50 each.)

"LITETUFF" RUGGED TENITE PARTS BOXES

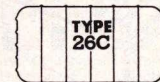


Don't confuse these with ordinary polystyrene boxes. Litetuff boxes are made from rugged Tenite II, and are virtually unbreakable under normal use. The hinges are stainless steel. The 83 box has stainless steel closing clasps. Inside dimensions of the 26A and 26C boxes are 8 x 4 1/4 x 1 1/4". Inside dimensions of the 83 box are 9 x 4 x 1 1/2". Use them for small parts or tools. All Jensen attache cases will hold at least two of these parts boxes.



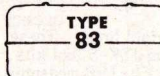
93B115 (26A)	\$3.25
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(In lots of 10, \$2.75 each)



93B117 (26C)	\$3.25
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(In lots of 10, \$2.75 each)



93B119 (83)	\$4.95
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(In lots of 10, \$4.25 each)

SOFT-PACK PLIER POUCH



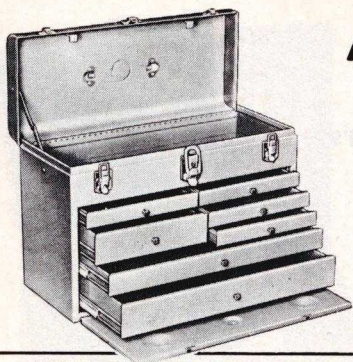
To protect precision tools in toolbox or chest. Three pockets hold small instrument-type pliers. Six additional pockets hold small tweezers, probes, extra soldering-iron tips, etc. Measures 14 x 5 1/4", not counting 2" fold-over flap. Made of soft, heavy gauge plastic.

85B731	\$1.85
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NOW YOU CAN CHARGE IT!



TOOL CASES



Machinist's Chest ... for precision tools

This is the tool box most preferred by the advanced technician, machinist, model maker, or instrument repairman. It is built solid and heavy, and features smooth-action felt-lined drawers. The top section measures 20" x 8-3/8" x 3-3/4". All drawers are 7-1/2" deep. There are four 1" half-drawers, one 2" half-drawer, one 1-1/2" full drawer, and one 2-1/2" full drawer. Drawers are felt lined and work on heavy-duty full suspension slides. Drawers have adjustable partitions. Cover and front panel are held in place with three positive-locking drawbolts. A full-length piano hinge attaches the watershed cover. Overall dimensions of this fine chest are 20" long by 13-1/2" high by 8-1/2" deep. Shipping weight 35 lbs. Jensen pays the shipping charges in U.S.

CAT. NO. JL-70 EA. \$ 56.25

DELUXE UTILITY CHEST

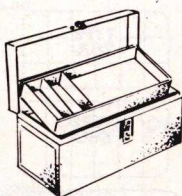


A sturdy box featuring two cantilevered trays for small parts and tools. Overall dimensions 13 1/2 x 6 1/2 x 6 1/4". Construction is one-piece, seamless, with rounded corners and returned edges. Heavy duty, nickel-plated hardware. Six tray compartments. This is a popular tool box in industry.

CAT. NO. 7213 \$7.50

STANDARD TOOL BOXES

Well-built, general purpose tool boxes. Feature full-length piano hinges, cap-end construction, heavy-plated positive lock hardware, eyebolt for padlocking. Drawn steel lift-out tray has compartments for small tools. Box cover has watershed over hinge for weathertightness. Long-lasting hammerloid finish. These boxes same as used for Jensen JTK-2 and JTK-5 tool kits. FL-14B measures 15 x 6-1/2 x 6". FL-19B measures 19 x 6-1/2 x 6". Both boxes shipped prepaid in U.S.



CAT. NO. FL-14B \$ 7.65
CAT. NO. FL-19B 8.95

PADLOCK

MASTER padlock fits boxes above. Laminated steel construction—cadmium plated. Shackle is 5/32" diameter.

M-10 \$ 1.65



NAMEPLATE

Vinyl nameplate for toolbox. White 3/4" letters on black background. State exact wording. Maximum 20 letters and spaces.



NP-1 \$.75

PLASTIC BOX

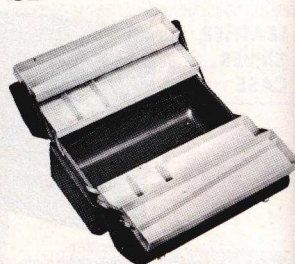
Tough polypropylene 11 1/2 x 5 1/4 x 3 1/2". No tray. For non-sparking tools or saltwater environment. Bright orange.



A-012 \$ 2.15

CANTILEVER CASE

Heavy-duty mechanics-type case with 4 cantilever trays. Spill-proof handle design. Holds up to 400 lbs. of tools and parts. Upper trays have socket-set compartments. The case is finished in black with bright red trays. Rust-resistant undercoating. Measures 17 x 8-1/2 x 10-1/2 inches. Shipped postpaid in U.S.

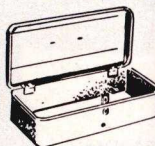


CAT. NO. 6417 \$ 27.25

SMALL UTILITY TOOL BOX

A small, inexpensive, but well built box for storage of tools or small parts. No tray. This box used for many Jensen tool kits. Full-drawn seamless construction with baked enamel finish. Measures 13 1/2 x 6 1/2 x 4 1/4".

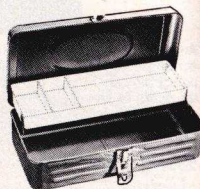
CAT. NO. 4013 \$ 3.10



SMALL UTILITY TOOL BOX

Similar to above but measures 13 1/2 x 6 1/2 x 4". This model has an automatic plastic tray with three compartments to hold small parts and hardware. Hard-baked enamel finish.

CAT. NO. 4113 \$ 3.85



POWER TOOLS

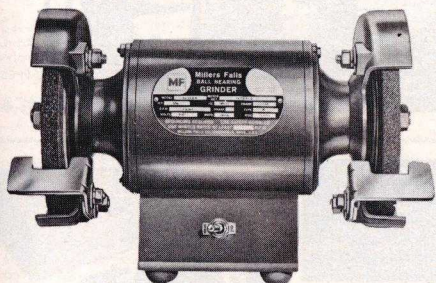
DOUBLE-INSULATED ELECTRIC DRILLS



Famous MILLERS-FALLS quality. Double insulation eliminates shock hazard. Cases black. Weight 3½ lbs. 130B014 standard-duty ¼" model has ½ HP motor, needle and sleeve bearings, 2250 RPM speed. 130B114 professional-duty ¼" model has ¾ HP motor, safety lock button, ball and needle bearings throughout, 2200 RPM speed. 130B039 professional-duty ¾" model has ¾ HP motor, double reduction gearing, ball and needle bearings throughout, and variable speed 0 to 1000 RPM plus reversing. For 115-125 volts AC.

- 130B014 (1/4" Standard duty) \$19.95
130B114 (1/4" Professional-duty) 44.50
130B039 (3/8" Professional-duty) 59.95

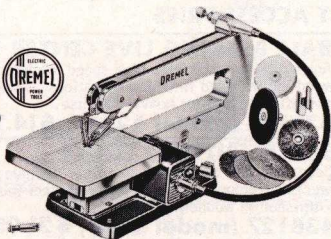
BENCH GRINDER



A compact, quality grinder for general shop use. Wheels are 6" diameter, ½" wide, with ½" bore. Motor turns at 3450 RPM and has ¼ HP rating. Shafts are dynamically balanced. For 115 volts AC.

- 130B504 \$74.50

DREMEL COMPLETE WORKSHOP

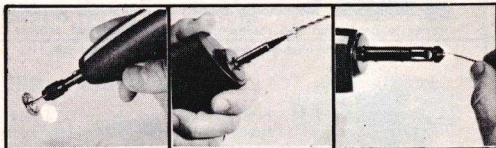


Five tools in one! The Dremel Moto-Shop is basically a 15" jig-saw with a power take-off that converts it in minutes to a bench grinder, disc sander, or buffing wheel. A flexible shaft attachment permits grinding, polishing, drilling, routing, sharpening, carving, and other jobs. Powerful ball-bearing motor cuts through 1¾" wood, light metal, tile, plastics, etc. Four-way blade holder permits cutting in any direction. Complete Moto-Shop includes basic saw unit with motor and power take-off, backing pad and adapter, saw blades, sanding discs, grinding wheel and guard, cloth wheel, wire wheel, adapter, polishing-compound stick, and 12-piece work tool accessory kit for the power take-off. For 115 V. 60 Hz. Shipped prepaid.

- 22B340 \$64.75

CORDLESS POWER HANDLE

FOR DRILLING,
BUFFING,
GRINDING,
WIRE
STRIPPING



Here is a portable, rechargeable power source designed to do a wide variety of light-duty jobs in hard-to-get-at places or where there are no electrical outlets available. It goes anywhere—functions in any position—no cord to get twisted or trip over. Use it for light-duty drilling, grinding, buffing—even wire stripping and twisting. This new power handle is human engineered to fit comfortably in either hand. Turn it on with a feather touch to the on-off button. Power takeoff is provided at each end to give both CW and CCW rotation to match the various work tools available. One end provides CW rotation and a shaft of 9/64" dia. The other end provides CCW rotation and has a female fitting with set screw to take any 3/16" workpiece such as the chuck listed below. Use this accessory chuck with its collets to hold work tools (drills, grinders, buffers, etc.) from 1/32" to 1/8". See pages 72-75 and 80 of this catalog for additional description of work tools and wire stripper heads. Power handle has no-load speed of 4000 to 5000 rpm. Maximum power output 5 inch-oz. Tool will operate for 30 minutes at 2-3 inch-oz. load. Basic power handle comes with charging adapter for 115 V. AC. Chuck and collets are not included—order separately from table below.

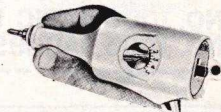
- P-627 POWER HANDLE AND CHARGER \$49.50

Cat. No.	DESCRIPTION OF ACCESSORIES	Each
W-105	Chuck with four collets, 1/32" to 1/8"	\$ 6.35
42B315	35-piece work tool set (grinders, buffers, etc.)	15.95
20-1	Solid-wire stripper, AWG #20 (.058" o.d.)	17.50
24-1	Solid-wire stripper, AWG #24 (.042" o.d.)	17.50
24-2	Solid-wire stripper, AWG #24 (.035" o.d.)	17.50
7055	Wire-twister hook	3.10

ENGRAVER

Marks tools, equipment, materials of all kinds—even glass. Discourage theft and loss by marking valuables with name, driver's license or social security numbers. Easy to use as a pencil! Calibrated adjustment controls depth of engraving. High-speed reciprocating motor provides 7200 strokes per minute. Nylon housing. Solid carbide point. For use on 115 volts AC.

- 22B320 \$14.95



BRAKE SWITCH

No more waiting for power tools to "wind down". Just connect this solid state device between power source and appliance. A touch of the "brake" button instantly brings saws, grinders, lathes, etc. to a dead stop. With 9' heavy-duty cord and receptacle. For 115 volts, 10 A. capacity.

- B-1 \$21.95



JENSEN PAYS THE SHIPPING CHARGES!



POWER TOOLS

UNIMAT

MINIATURE PRECISION LATHE unique, multi-functional

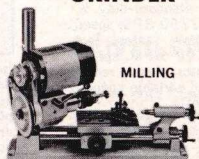
DESCRIPTION: Unimat is unlike any other power tool in the world. It was designed from the start as a machine to do many different jobs; metal turning as a precision lathe; drilling, boring and milling as a vertical drill press; surface grinding, sharpening, polishing, threading, sawing . . . in all of these jobs, Unimat performs as well as a single-purpose machine. Thousands of Unimats are used in laboratories, factories in production and research, and this widespread acceptance makes it possible to offer this precision tool at reasonable cost.



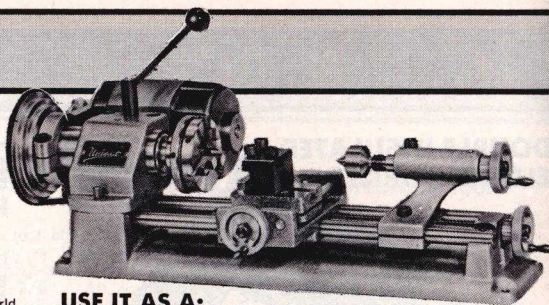
SENSITIVE
DRILL
PRESS



GRINDING



MILLING



USE IT AS A: MILLING MACHINE SAW DRILL PRESS LATHE POLISHER HAND DRILL GRINDER

MAIN FEATURES:

- A. **PRECISION METAL TURNING LATHE** handles 6.9 x 1.6" steel bar between centers, or 3 inch workpiece over bed. (Swing is increased to 4 1/2" with headstock raising block).
- B. **HEADSTOCK BALL BEARINGS** . . . maximum run-out only .0005". Jewellers precision with heavy cutting capacity.
- C. **POWER DRIVE** . . . 3 pulley system provides 11 different speeds from 255 to 4,000 RPM.
- D. **MOTOR** . . . 1/10 hp continuous duty. Can be controlled by optional foot switch, thermostat, or SCR power pack.
- E. **BED** . . . seasoned cast iron, ways: precision ground steel bars, dead accurate.
- F. **TOOL POST** . . . steel block prevents chatter, guarantees centering.
- G. **DRILL PRESS** . . . 6 1/4" between nose and cross slide; drills to center of 6" circle.
- H. **DETACHABLE HEAD** swings 360° to operate in any position. Can be used as portable power drill.
- I. **FEEDS:** precision screws, feed knobs calibrated in thousandths.
- J. **SIZE:** 16 inches overall, can be used anywhere. Weight: only 33 lbs.
- K. **GARANTEE:** all parts, motor guaranteed against manufacturing defect, 1 year.



modifying instrument panel

countersinking motor

machining chassis in electronics lab

micro-drilling precision shaft

fixturing a lens board

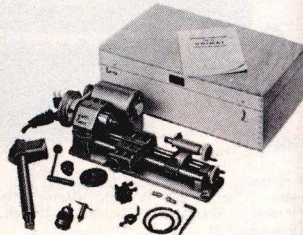
milling medical instrument part

HERE IS WHAT YOU GET IN THE BASIC UNIMAT:

The basic UNIMAT includes a powerful 1/10 h.p. motor and the following items: Ribbed cast-iron lathe bed, ball bearing headstock spindle, carriage assembly, tailstock, ball bearing idler pulley, tool post, steel vertical column, vertical column headstock adapter, grinding wheel arbor, face plate, lathe dog, two dead centers, slotted adapter, spindle-wheel hand lever, set of drive belts, Allen wrench, headstock alignment pin, 40-page illustrated manual, and wood chest.

No cutting tools or chucks included. Order separately.

NO. 1000 BASIC UNIMAT \$199.50
NO. 1005 JACOBS CHUCK 14.25



POPULAR UNIMAT ACCESSORIES

POWER FEED ATTACHMENT

Produce precision finish by elimination of hand feeding. Lever-engaged gears give 1:50 reduction and feed rate of .0008" per revolution.

43B114 (model 1290) \$54.75



LATHE CHUCKS

Reversible jaw chucks come complete with key and back-plate adapter. Capacity 2-1/4"

43B118 (1001-3 JAW) \$41.75

43B119 (1002-4 JAW) 43.95



MILLING TABLE

For large or irregular shaped workpieces, round stock, castings, etc. 3 x 5" table. Mounts on cross slide in 8 ways. With 2 sets clamps.

43B121 (model 1210) \$ 21.95



MACHINE VISE

V-milled jaws grip round or rectangular workpieces for drilling, milling, grinding. Jaw capacity 1-1/8". Mounts on cross slide.

43B123 (model 1010) \$19.75



BALL BEARING LIVE CENTER

Anti-friction center aids high speed machining, wood turning, and finishing operations. Double row ball bearings for heavy-duty use.

43B125 (model 1221) \$ 14.25



SET OF CUTTING TOOLS

Complete set of lathe tool bits. Includes 6 precision-ground 1/4" high-speed steel tools. Furnished in wooden case.

43B127 (model 2820) \$ 21.95



COLLET HOLDER AND COLLETS

For precision turning of small bars. Collets available from 1/64" thru 5/16" by 64ths. Metric sizes also available. Specify size.

43B129 (holder only) \$ 21.95

43B131 (collets) 7.95



SET OF DRIVE BELTS---new type, poly-urethane, industrial-type belts. Set of one each large and small. **70 — \$4.95**

MINIATURE MACHINING TECHNIQUES HANDBOOK—40 page book on how to use Unimat. Free with Unimat. **68 — \$2.25**

See additional Unimat accessories following page.

JENSEN TOOLS AND ALLOYS

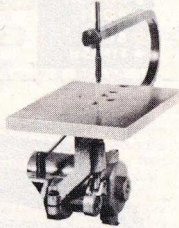
4117 N. 44th Street, Phoenix, Arizona 85018

ADDITIONAL UNIMAT ACCESSORIES

COMBINATION SAW

An 8" jig saw and sabre saw in one unit. Throat 8" with rectangular table 6 x 8". Accurate cuts as thin as .020" can be made. 43B200 is basic saw attachment. 43B202 is a set of 12 assorted jig saw blades.

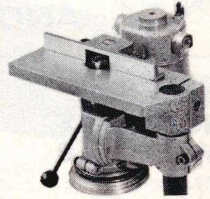
43B200 (1080) ... \$54.95
43B202 (1083) 2.75



PLANER ATTACHMENT

Planes glass-smooth surfaces on wood and hardboard up to 1" wide. Mounts on machine spindle. Depth of cut adjustable. Table size 8 x 2". A 7" fence is included. Basic 43B206 planer requires 43B218 headstock raising block (see below). 43B208 is a spare planer cutter.

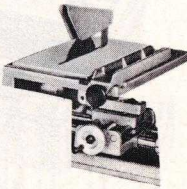
43B206 (1050) ... \$43.95
43B208 (1051) 7.15



CIRCULAR SAW

Table saw cuts wood, metal, and plastic. Table is 6 x 8" and adjusts to different heights to control cut depth. 43B210 is circular saw attachment. 43B212 is a 2 1/2" circular metal saw blade.

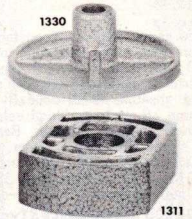
43B210 (1240) \$36.25
43B212 (1241) 5.45



DRILL PRESS TABLE

This 3 1/2" round plate acts as drill press table when screwed to cross slide. Can also be used as a sanding disc when threaded on the lathe spindle, in which case 43B218 headstock raising block is also required.

43B214 (1330) \$10.95
43B218 (1311) 5.45



SOFT CHUCK JAWS

Set of 3 soft jaws for use with 43B118 3-jaw chuck (previous page). Can be drilled, tapped, machined, or modified as required to hold special parts.

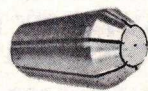
43B220 \$10.95



UNDRILLED COLLET

This soft steel collet is delivered with a tiny pilot hole. Unimat owner can machine it out as desired to size required. Less expensive than buying many different-sized collets.

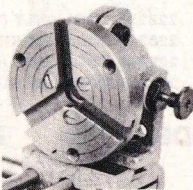
43B240 \$6.55



T-SLOT FIXTURE PLATE

A 2 1/2" diameter workplate with 3 T-slots and 3 threaded holes for fixture screws. A versatile workplate. Comes with set of milling clamps.

43B250 (1261) ... \$10.95



ADJUSTABLE TOOL POST

A new accessory which allows the tool bit to be adjusted to height desired without needless shimming. Mounts quickly in cross-slide T-slot, rotates 360°, and accepts 1/4" square tool bits.

43B270 (1340) ... \$10.95



STEADY REST

Clamps anywhere on the lathe bed. Has 3 brass jaws which adjust to capacity of 1 1/2". This rest supports tubing and work beyond the normal length capacity of the lathe.

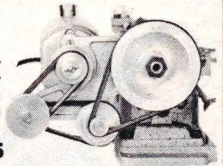
43B280 (1040) ... \$18.65



SLOW SPEED ATTACHMENT

Provides slower spindle speeds for thread cutting and turning large diameter workpieces. Also good for working on tough alloys and milling. Includes an additional ball-bearing idler assembly.

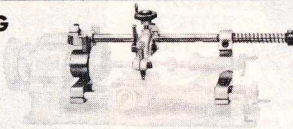
43B290 (1280) ... \$24.75



THREAD CHASING ATTACHMENT

Cuts precision threads. Attachment includes outside threading tool bit. Thread patterns and followers not included—order separately (43B310). Specify 16, 18, 20, 22, 24, 26, 28, 30, 32, 40, 48, 50 or 56 turns per inch. Metric sizes 0.50, .70, .75, .80, 1.00, 1.25 or 1.50 mm.

43B300 (1220 Attachment) \$54.95
43B310 (Specify thread) 9.85



MORE ACCESSORIES (NOT ILLUSTRATED)

CAT. NO.	DESCRIPTION	PRICE
43B400	Handsome case holds 21 collets (1025)	\$ 10.95
43B410	Polishing arbor for cloth discs (1030)	16.95
43B412	Set of cloth discs for above (1034)	5.45
43B414	Flexible shaft attachment (1250)	52.85
43B415	Set of three grinding wheels (2841)	10.95
43B442	Grinding wheel guard (1115)	8.75
43B416	T-stud and clamp set, pair (1210/02)	6.55
43B417	SCR motor-speed controller (2998)	21.95
43B418	Jointer attachment, adjustable (1060)	39.55
43B420	Extra cutter for jointer (1061)	7.15
43B430	Adjustable T-bar tool rest (1202)	15.35
43B440	Spur-drive center with prongs (1205)	3.85

NOW YOU CAN CHARGE IT!



POWER TOOLS



PALM-SIZE MOTO-TOOLS AND ACCESSORIES

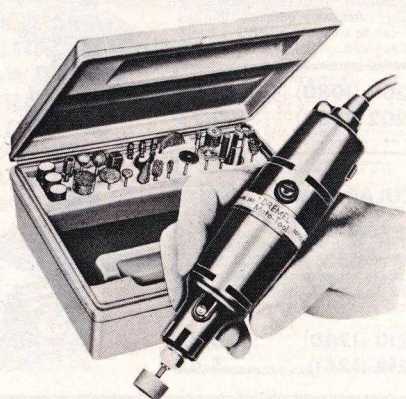
- GRIND
- DRILL
- POLISH
- ROUT
- BURR
- FINISH

World-famous DREMEL grinders—miniature power workshops for craftsmen, professional and industrial users. Palm-size tools fit comfortably in the hand, deliver over 30,000 RPM and accommodate hundreds of different work tools. Use on any material—wood, steel, non-ferrous metals, glass, ceramics. Use to drill, grind, polish, carve, sand, engrave, or deburr.

LIGHT-DUTY MODEL 260

New design features a constant torque, permanent-magnet motor. Packs more than twice the power of the old design and turns in excess of 30,000 RPM. Only 6½" long. Weighs under 10 oz. Easily performs intricate, detailed work with pinpoint accuracy. The electrically welded armature is dynamically balanced for vibration-free operation. Large air vents and high velocity fan assure cool operation. A handy hanger hook is provided. Bearings are oil-impregnated bronze. Case is sturdy, shockproof Lexan. Three-wire cord is 6' long. 22B200 is basic tool plus ¼" collet and wrench—no case or other accessories. 22B210 is basic tool plus 34 accessories (collets, cutters, sanders, points) packaged in a heavy-duty plastic case.

22B200 TOOL ONLY (Type 260)	\$27.95
22B210 COMPLETE KIT (Type 261)	37.95



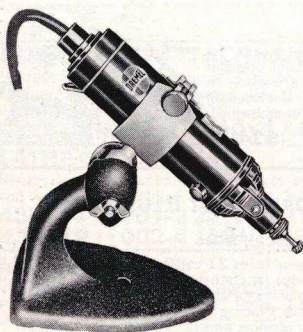
HEAVY-DUTY (INDUSTRIAL) MODELS 270 AND 280

Constant torque, permanent-magnet motor turns at more than 30,000 RPM. Has more than twice the power of the old industrial model #3. Weighs under 12 oz. and is only 7¼" long. Other features same as light-duty model above. This model available with choice of oil-impregnated bronze bearings (22B220 and 22B240) or ball bearings (22B260 and 22B280). Three-wire cord is 6' long. 22B220 and 22B260 are basic tools with ¼" collet and wrench—no accessories or case. 22B240 and 22B280 are complete kits with 34 assorted work tools, packaged in heavy duty plastic case. For 115 V. 60 Hz.



22B220 TOOL ONLY (Type 270)	\$29.95
22B240 COMPLETE KIT (Type 271)	39.95
22B260 TOOL ONLY (BB-Type 280)	39.95
22B280 COMPLETE KIT (BB-Type 281)	49.95

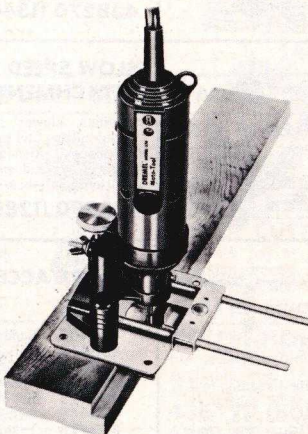
UNIVERSAL STAND MODEL 223



Leaves both hands free to handle the work. Can be used with all Moto-Tools—quickly adjusts to any angle. Heavy base prevents tipping. Quick action release clamp.

22B310 (Type 223)	\$9.95
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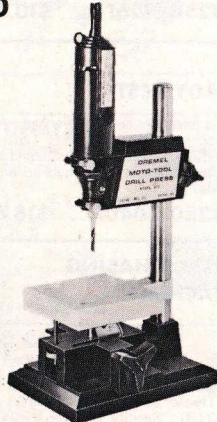
ROUTER MODEL 229



This attachment excellent for hands-free surface routing. Has calibrated depth control and adjustable fence (0 to 3¼"). Use to route, rabbet, dado, shape, edge, chamfer.

22B245 (Type 229)	\$9.95
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DRILL PRESS MODEL 210



Works with any Moto-Tool. Has 3" throat depth and overall height of 12". Cast aluminum table is 4 x 4" with 1" travel. Has hold-down guides. Fingertip ease of operation and completely portable.

22B300 (Type 210)	\$19.95
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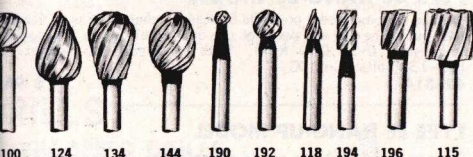
VARIABLE SPEED MOTO-TOOL



brand new series of Dremel MOTO-TOOLS with no-load speeds variable from 5,000 to 25,000 RPM. Allows the operator to match the speed to the work using "Dial-a-Speed" fingertip control. Other features and specifications same as heavy-duty tool on previous page. 22B284 and 22B286 tools have oil impregnated bronze bearings. 22B288 and 22B290 have ball bearings. 22B284 and 22B288 are basic variable-speed tools with 1/4" collet and wrench—no accessories case. 22B286 and 22B290 are complete kits with 34 assorted work tools and accessories, packaged in heavy-duty plastic case. For 115 V. 60 Hz.

22B284 TOOL ONLY (TYPE 370)	\$39.95
22B286 COMPLETE SET (TYPE 371)	49.95
22B288 TOOL ONLY (BB-TYPE 380)	49.95
22B290 COMPLETE SET (BB-TYPE 381)	59.95

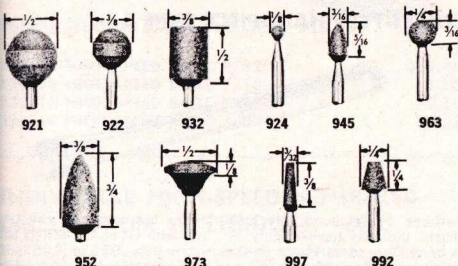
HIGH-SPEED STEEL CUTTERS



made of high-speed steel, to stay sharp longer and cut smoother. For use on most metals, plastics, and wood. Shanks are 1/8" diameter. Be sure to specify style desired (by number).

H.S. STEEL CUTTERS (Specify Type)	\$1.59
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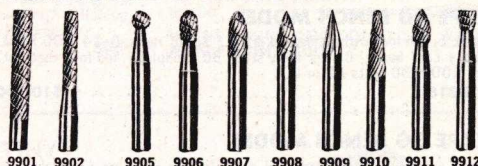
MOUNTED EMERY WHEEL POINTS



highest industrial-quality emery wheel points in many shapes and sizes. Long abrasive life. Shanks are 1/8" diameter. Be sure to specify style desired (by number).

EMERY POINTS (Specify Type)	\$.69
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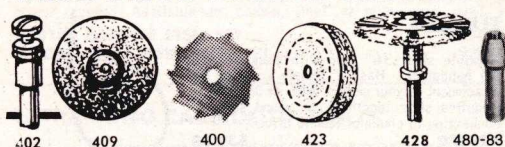
TUNGSTEN CARBIDE CUTTERS



Outlast high-speed steel cutters many times over. Shanks are 1/8" diameter and heads do not exceed 1/8" across. Specify style desired (by number).

CARBIDE CUTTERS (Specify Type)	\$4.60
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MISC. MOTO-TOOL ACCESSORIES



402-Mandrel for wheels and saws	\$.70
409-Emercy cutting wheels (Pkg. 36)	1.89
400-Saw blade .023" thick	1.30
423-Cloth polishing wheel, 1" dia.70
428-Steel brush 3/4" dia.70
480-Moto-tool collet 1/8"70
481-Moto-tool collet 3/32"70
482-Moto-tool collet 1/16"70
483-Moto-tool collet 1/32"70

2-PIECE CARBIDE CUTTER SET

Twelve of the most useful shapes and sizes needed for industrial and shop use. All points are tungsten carbide for longest life. Shanks 1/8". Vinyl fold-up pouch.

200	\$55.20
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ROUTER SET

Six router bits for precision cutting, inlaying and mortising. All have 1/8" shank. Use with 22B245 attachment above.

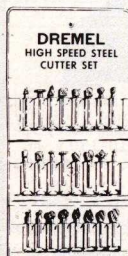
200	\$21.95
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24-PIECE HIGH-SPEED CUTTER SET



A deluxe set of 24 high-speed steel cutter points (all different shapes) for almost every conceivable shaping, cutting, or hollowing job on most metals, plastics, and woods. Highest quality, they stay sharp longer and cut smoother. All points have 1/8" shanks. Vinyl hang-up pouch.

240	\$37.95
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12-PIECE EMERY WHEEL SET

Set of industrial-quality emery points in wide variety of shapes. All points have 1/8" shanks. Vinyl pouch.

206	\$8.50
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12-PIECE SILICON GRINDING SET

Made especially for working on hard steel, ceramics, glass, and other hard materials. Set of 12 assorted points with 1/8" shanks in vinyl pouch.

205	\$8.50
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JENSEN PAYS THE SHIPPING CHARGES!



POWER TOOLS



FOREDOM POWER TOOLS MINIATURE

BENCH MODEL



Famous Foredom Tools for grinding, polishing, drilling, carving, sanding, etc. Used by watchmakers, machinists, modelmakers, instrument technicians, hobbyists. Flexible 37" shaft and compact handpiece allow access to difficult places. Speed is adjustable by foot rheostat (furnished with tool). Direct drive models have additional capability of operating at 0-5,000 RPM with no torque loss. Standard handpiece style 30 (included) is $\frac{3}{16}$ " diameter and has adjustable key chuck to handle work tools up to $\frac{1}{8}$ " shank diameter. Other handpieces available (see below).

TYPE DD BENCH MODEL

Basic bench tool without geared drive. Speed range 0-14,000 RPM. Heavy cast base. Comes with style 30 handpiece and foot rheostat. For 100-130 volts AC or DC.

42B318 \$106.00

TYPE GG BENCH MODEL

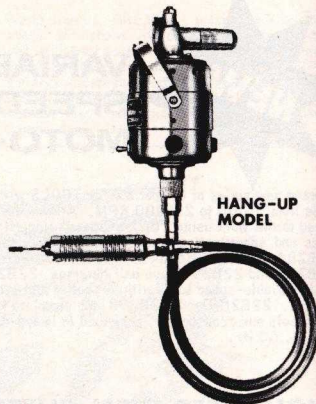
Same as above, but has geared drive feature allowing optional slow-speed operation (0-5,000 RPM). Takes only 15 seconds to change from direct to geared drive. For 100-130 volts AC or DC.

42B360 \$121.00

SPECIFICATIONS

1/10 HP universal motor
37" flexible shaft
Speed range with rheostat:
0-14,000 RPM on direct drive
0-5,000 RPM on geared drive
Handpiece and rheostat included

HANG-UP MODEL



TYPE CC HANG-UP MODEL

Popular hang-up model preferred by many technicians as it keeps the shaft out of the way and does not use up valuable bench space. Direct drive model 0-14,000 RPM. With handpiece and rheostat. For 100-130 volts AC or DC.

42B314 \$ 96.00

TYPE EE HANG-UP MODEL

Same as above, but has geared drive feature allowing optional slow-speed operation (0-5,000 RPM). Takes only 15 seconds to change from direct to geared drive. For 100-130 volts AC or DC.

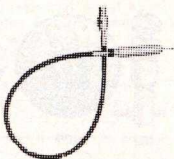
42B364 \$111.00

POPULAR ACCESSORIES

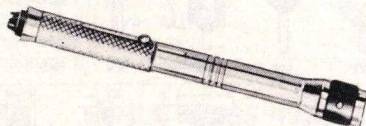
FLEXADE

Flexible shaft 36" long with standard type 30 handpiece. Has $\frac{1}{4}$ " female coupling for attachment to your motor, drill, or drillpress. Requires short length of $\frac{1}{4}$ " round stock if connecting to chuck or female drive.

42B470 \$38.00



COLLET-TYPE HANDPIECE TYPE 5



Features oil-retaining, precision bronze bearings and collet-type chuck. Diameter approximately $\frac{1}{8}$ ". Use with set of four collets below to cover range of workpiece shaft diameters from .013 to .125". This handpiece recommended for fine work where smaller diameter handpiece is desired.

42B490 \$13.00

COLLET SET

A set of four precision collets for use with handpiece type 5 above. Four collets cover the range of workpiece shaft diameters from .013 to .125". Furnished in plastic case.

42B498 \$ 5.00



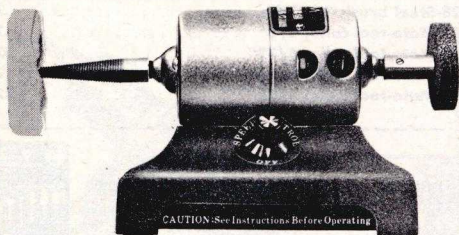
CONTRA-ANGLE HANDPIECE



Has familiar shape of dental-type instrument. For light work in awkward spaces. Popular with tool and die makers. Has latch-type mandrels for use with unmounted burs and work accessories (see next page for kits of these special accessories).

42B496 \$40.00

MINIATURE HIGH-SPEED BENCH GRINDER



Unique, high speed bench grinder for buffing, polishing, and grinding small parts. Height to shaft $3\frac{3}{4}$ ". Speed 0-14,000 RPM using built-in SCR control. Comes with grinding stone, tapered spindle, and cotton buff. Motor $\frac{1}{8}$ HP. For 110-130 v. AC.

42B440 \$49.50

ACCESSORY KIT

Includes coarse, medium, and fine aluminum oxide stones for above, plus 5 additional brushes and buffs in plastic case.

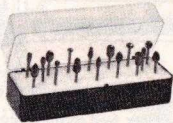
42B450 \$14.25



POWER TOOL ACCESSORIES

Generally have $\frac{1}{8}$ " shanks for use with Foreman tools at left.
Use with Dremel tools, order $\frac{1}{8}$ " collet #481 page 73.

VANADIUM CUTTERS



Set of 16 assorted vanadium steel burrs for use on all materials except hardened steel and brass. Shanks $\frac{1}{8}$ " dia. Plastic case.

42B530 \$17.95

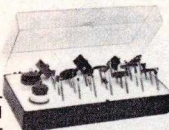
ABRASIVE POINTS



Set of 24 assorted aluminum oxide points (used for fast cutting on steel, malleable iron, porcelain, glass, etc.). Shanks $\frac{1}{8}$ ". Plastic case.

42B550 \$13.95

ASSORTED ACCESSORIES



Set of 35 assorted accessories including steel cutters and burrs, sanding drums, points, brushes, etc. Shanks $\frac{1}{8}$ ". Plastic case.

42B315 \$15.95

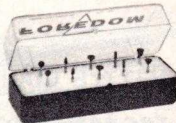
RUBBERIZED ABRASIVES



An 80-piece point, wheel, and mandrel assortment for deburring, smoothing, polishing. In plastic case. A CRAYTEX product.

777 \$9.95

LATCH-TYPE ACCESSORIES



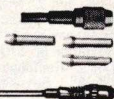
For use with handpieces equipped with special latch-type mandrels (such as 42B496 on p. 74). 42B620 is a set of 10 assorted vanadium steel burrs in plastic case. Shanks $\frac{1}{8}$ ". 42B640 is a set of 10 assorted silicon carbide and aluminum oxide points in plastic case. Shanks $\frac{1}{8}$ ".

42B620 BURRS \$4.95

42B640 POINTS 8.75

CHUCKS AND COLLETS

W-105 is chuck with $\frac{1}{8}$ " shank and set of collets for work tools $\frac{1}{8}$ to $\frac{1}{4}$ ". M-50-F is a mini chuck with $\frac{1}{8}$ " shank taking drills #70 to #80.



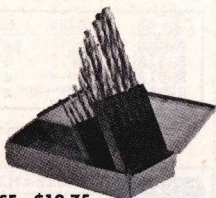
W-105 CHUCK AND COLLET SET \$ 6.35
M-50-F MINI CHUCK 1.95

DRILLS

HIGH-SPEED DRILLS

$\frac{1}{16}$ " to $\frac{3}{8}$ " DIAMETER

Set of 13 high-quality, high-speed twist drills in fractional sizes from $\frac{1}{16}$ " to $\frac{1}{4}$ ". Jobbers length. Furnished with automatic self-positioning steel drill case.



76B058 SET OF 13 DRILLS AND CASE - \$10.75

32B100 HIGH-SPEED DRILL 9/32"	\$ 1.40
32B110 HIGH-SPEED DRILL 5/16"	1.70
32B112 HIGH-SPEED DRILL 11/32"	2.10
32B114 HIGH-SPEED DRILL 3/8"	2.45

INDIVIDUAL HIGH-SPEED NUMBERED DRILLS FROM #1 THROUGH #80

High quality, general purpose jobbers-length drills. High speed steel. All sizes stocked from No. 1 to No. 80 inclusive. Select from table below. When ordering, give Cat. No. 32B120 and be sure to specify number of drill desired.

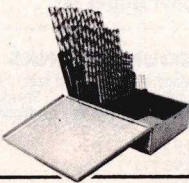
From No.	Thru No.	Net Ea.	Lots 12
1	6	\$.99	\$.89
7	12	.79	.71
13	17	.70	.63
18	27	.57	.51
28	38	.42	.38
39	56	.33	.30
57	68	.44	.40
69	80	.60	.54

For all sizes, use Cat. No. 32B120 (specify size).

SET OF 60 NUMBERED DRILLS

Set of 60 high-speed drills (No. 1 through #60) in metal case. A complete set for the shop or laboratory. See page 80 for conversion table of drill numbers to inches.

76B140 \$ 33.75



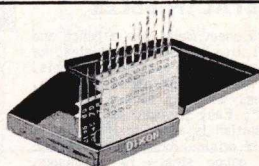
TINY PRECISION DRILLS

NO. 61 to NO. 80

Sets of 20 twist drills in very small sizes from #61 down to #80 (.039" to .0135").

Furnished in tiny metal index stand with hinged cover. Available in carbon steel or high-speed steel.

31B140 CARBON STEEL SET \$ 7.45
31B255 HIGH SPEED STEEL SET 9.95



EXTRA-LONG CARBIDE TIP DRILLS

Used by electricians and sound engineers to penetrate deep walls of brick, concrete, tile, etc. Carbide tips for long life. Length 18" with 16 $\frac{1}{2}$ " flutes. Shanks $\frac{1}{2}$ ".

146B199 (1/4") \$5.70
146B203 (3/8") 6.95

1/4" SHANK HIGH SPEED DRILLS

Use to drill holes larger than $\frac{1}{4}$ " using electric drills with $\frac{1}{4}$ " chucks. Drills are high-speed steel with average length about 4 $\frac{1}{2}$ ".

Cat. No.	Size	Each	Cat. No.	Size	Each
32B161	9/32"	\$2.15	32B169	3/32"	\$3.25
32B163	5/16"	2.15	32B171	7/16"	3.70
32B165	11/32"	2.50	32B173	15/32"	4.50
32B167	3/8"	2.75	32B175	1/2"	4.50



"SPEEDBOR" WOOD BITS

Hollow ground point bores clean and fast in hard and soft woods, plywood, plastics. Shank for $\frac{1}{4}$ " drill. Set of 6 bits $\frac{1}{4}$ " to 1" in plastic pouch.

886-R \$ 8.25



NOW YOU CAN CHARGE IT!



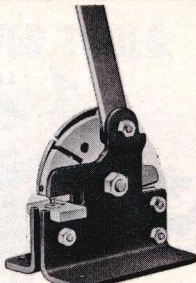
METALWORKING

"LITTLE GIANT"

THE COMPLETE METAL WORKSHOP

"Little Giant" the 4-in-one-tool, does forming, shearing, riveting, and punching. Ideal for small jobs that would otherwise tie up larger equipment. Throat depth is 1". Die plate is stationary, which eliminates critical adjustments and danger of damage to the punch and work. Shears flat stock up to 1" wide and 16 gauge thickness. Has special hole for shearing rod stock and wire. Punches sharp, burr-free holes in metals up to 16 gauge and 1" from edge of stock. Included with the tool are a 3/16" round hole punch and a riveting punch. Available as accessories are round punches in 1/8, 5/32, 7/32, and 1/4". Square punches are available in 1/8, and 3/16", and hex punches in 1/8, 3/16, and 1/4". Rectangular punches are available in 1/8 x 3/16" and 1/8 x 1/4". Be sure to specify sizes when ordering punches.

401 LITTLE GIANT TOOL \$13.95
403 REPLACEMENT PUNCH 1.00



FAMOUS "ADEL" METAL NIBBLER

Cuts sheet metal like a punch and die. Use for making templates, for cutout of radio chassis and panels, for making model parts. Notches, trims, and cuts to any size over 1/4". Easy to use. No strain or distortion is added to the edges or to the original form. Tool capacity: 18 gauge steel—1/4" aluminum, copper, and certain plastics. Replacement punch available.



74B130 AN-1 TOOL \$ 6.45
74B133 REPLACEMENT PUNCH 3.55

"LITTLE GIANT"

BRAKE for light-duty bending and forming 18" capacity



Makes clean smooth bends up to 90° in metals up to 16 gauge thickness. Ideal for small "one-shot" jobs as well as production runs. The unique design of the "Little Giant" brake permits forming of boxes, covers, and trays by cutting 1" deep slots in the brake bar. This allows the previously formed adjacent side flange to fold in the full 90° and enables the operator to make flanged edges up to 1" in height. Adjustments for stock thickness and sharpness of bends are quick and easy to make. Fold piece after piece with assured accuracy. Rugged construction and simple design provide a lifetime of trouble-free service. Requires two "C" clamps, not included with brake (order separately below).

151B018 BRAKE \$ 15.95
35B019 Set of 2 "C" Clamps 2.29

DEBURRING TOOL

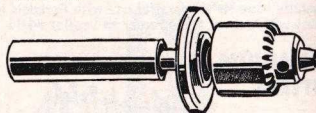


A compact deburring-scraping tool with retractable blade. Adjusts to length needed by user. Triangular blade is made of file steel. Overall handle length is 3 1/2".

F-217 \$ 7.25

SMALL HOLE DRILLER

Small Drill
Breakage
Reduced
Up to 400%



Small hole drill pays for itself quickly—practically stops drill breakage and drills stay sharp 400% longer, because operator "feels" the correct cutting pressure. Finger feed on the drill ring gives extremely precise control. For precision instrument work, hydraulic and air valves, electronic production—any job where small precision holes with close tolerances are required. Use with standard 1/2" drill press chuck or Gallatin chuck on milling machine, jig borer, or lathe tail stock. Jacobs key chuck model takes small drills from .005 to 3/4". Provides a drilling accuracy of .002". Albrecht chuck model takes small drills up to 1/4". Both models ideal for drilling printed circuit boards.

500A JACOBS CHUCK \$ 61.00
500B ALBRECHT CHUCK 83.50

HOLE SAWS

Cutting edges made from a special formula molybdenum high-speed steel. Use these hole saws on wood, metal, or plastic. Mandrel has 1/4" pilot drill and 1/4" round shank. Not included with saws—order separately.

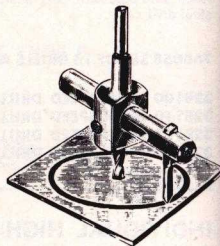


Cat. No.	Saw Dia.	Each	Cat. No.	Saw Dia.	Each
R-509	3/4"	\$5.90	R-516	1"	\$4.38
R-510	3/4"	4.45	R-518	1 1/4"	4.38
R-512	3/4"	4.45			
R-514	3/4"	4.45	R-5514	Mandrel	4.38

GENERAL®

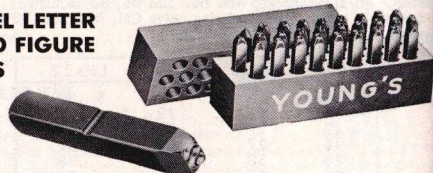
CIRCLE CUTTER

Popular industrial type adjustable from 1" to 5 1/2" diameter. Cuts metals, plastics, wood, or hardboard. Pilot drill is 1/4". Round shank is 3/4" diameter for use with 3/4" drill chucks.



5B-GH \$ 4.20

STEEL LETTER AND FIGURE SETS



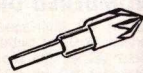
Each "Gruv-Grip" stamp has a thumb line on one side to assure proper orientation of the stamp before it is struck. Figures are Gothic style, 1/4" high. Letter set includes 27 characters. Number set includes 9 characters (the 6 is inverted to make a 9). Each set furnished in a sturdy wood box with lid.

3271 LETTER SET \$ 10.95
3091 FIGURE SET 3.65

COUNTER SINKS

Made of high-speed steel, heat treated and centerless ground. Shank is 1/4" round. For use on metals, hardboard, plastic. Two sizes.

195 (1/2") \$ 2.75
195 (3/4") 3.75



CHASSIS PUNCHES

FOR RADIO, TV, and ELECTRICAL WORK

Greenlee chassis punches save hours of tedious drilling, sawing, filing, and fitting. . . . produce clean, true holes in seconds for sockets, controls, meters, and other components.

Easy to operate. Simply insert the punch in a small drilled hole. . . a few quick turns with a hand wrench and the job's done. Punches cut up to 16-gauge metal quickly and easily.



NO. 730 ROUND CHASSIS PUNCHES

Cat. No.	Diameter	Screw Dia.	Each
64B104	1/2"	1/4"	\$3.95
64B106	9/16"	1/4"	3.95
64B108	5/8"	1/4"	3.95
64B110	11/16"	3/8"	3.95
64B112	3/4"	3/8"	3.95
64B114	13/16"	3/8"	3.95
64B116	7/8"	3/8"	3.95
64B118	15/16"	3/8"	4.50
64B120	1"	3/8"	4.50
64B122	1-1/16"	3/8"	4.65
64B124	1-1/8"	3/8"	4.65
64B126	1-5/32"	3/8"	4.65
64B128	1-3/16"	3/8"	4.65
64B130	1-7/32"	3/4"	DISCONTINUED
64B132	1-1/4"	3/8"	4.65
64B134	1-5/16"	3/8"	5.85
64B136	1-3/8"	3/8"	5.85
64B138	1-1/2"	3/8"	6.35



NO. 731 SQUARE CHASSIS PUNCH

Cat. No.	Diameter	Screw Dia.	Each
64B202	1/2"	1/4"	\$10.65
64B204	5/8"	3/8"	10.65
64B206	3/4"	3/8"	11.50
64B208	7/8"	3/8"	13.50
64B210	1"	3/8"	13.95



NO. 731R RELAY PUNCH

64B240	Makes rectangular holes 1.018 by .861" for Potter and Brumfield (or equal) miniature relays.	\$20.65
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TAP AND DIE SETS

Ace



inch and metric sets made by Henry L. Hanson Co. Inch set No. 614 includes 17 round dies 1" o.d., in sizes 4-36, 6-32, 8-32, 10-24, 12-24, 14-20, 1/8-18, 3/16-16, 1/4-14, 5/16-13, 3/8-12, 1/2-10, 5/8-8, 3/4-6, 1-4, 1-1/4, 1-1/2, 1-3/4, 2-1/4, 2-1/2, 3-1/4, 4-1/4, 5-1/4, 6-1/4, 8-1/4, 10-1/4, 12-1/4, 14-1/4, 16-1/4, 18-1/4, 20-1/4, 24-1/4, 28-1/4, 32-1/4, 36-1/4, 40-1/4, 48-1/4, 56-1/4, 64-1/4, 72-1/4, 80-1/4, 88-1/4, 96-1/4, 104-1/4, 112-1/4, 120-1/4, 128-1/4, 136-1/4, 144-1/4, 152-1/4, 160-1/4, 168-1/4, 176-1/4, 184-1/4, 192-1/4, 200-1/4, 208-1/4, 216-1/4, 224-1/4, 232-1/4, 240-1/4, 248-1/4, 256-1/4, 264-1/4, 272-1/4, 280-1/4, 288-1/4, 296-1/4, 304-1/4, 312-1/4, 320-1/4, 328-1/4, 336-1/4, 344-1/4, 352-1/4, 360-1/4, 368-1/4, 376-1/4, 384-1/4, 392-1/4, 400-1/4, 408-1/4, 416-1/4, 424-1/4, 432-1/4, 440-1/4, 448-1/4, 456-1/4, 464-1/4, 472-1/4, 480-1/4, 488-1/4, 496-1/4, 504-1/4, 512-1/4, 520-1/4, 528-1/4, 536-1/4, 544-1/4, 552-1/4, 560-1/4, 568-1/4, 576-1/4, 584-1/4, 592-1/4, 600-1/4, 608-1/4, 616-1/4, 624-1/4, 632-1/4, 640-1/4, 648-1/4, 656-1/4, 664-1/4, 672-1/4, 680-1/4, 688-1/4, 696-1/4, 704-1/4, 712-1/4, 720-1/4, 728-1/4, 736-1/4, 744-1/4, 752-1/4, 760-1/4, 768-1/4, 776-1/4, 784-1/4, 792-1/4, 800-1/4, 808-1/4, 816-1/4, 824-1/4, 832-1/4, 840-1/4, 848-1/4, 856-1/4, 864-1/4, 872-1/4, 880-1/4, 888-1/4, 896-1/4, 904-1/4, 912-1/4, 920-1/4, 928-1/4, 936-1/4, 944-1/4, 952-1/4, 960-1/4, 968-1/4, 976-1/4, 984-1/4, 992-1/4, 1000-1/4. Metric set No. 615 includes 17 round dies 1" o.d., in sizes 3MM-60 to 12MM-1.75, plus matching taps and same accessories and case as inch set.

14 INCH SET	\$52.20
312 METRIC SET	65.00

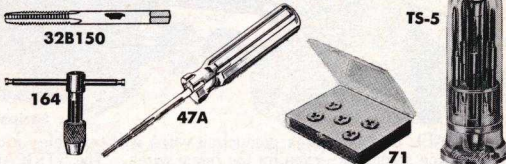
CENTER PUNCHES



GENERAL HARDWARE center punches have hardened, heat-treated points for strength and long life. 74-B punch (left) has 3/32" point. It is 4" long with body diameter of 5/16". 79 automatic punch (right) is operated by pressing against the work until the internal spring mechanism releases to automatically make the impression. Impressions are uniform and can be made rapidly with this punch. 5" long by 1/2" dia.

CAT. NO. 74-B CENTER PUNCH	\$.85
CAT. NO. 79 AUTOMATIC PUNCH	6.25

TAPS, TAP WRENCHES, DIES, SETS



TAPS—finest quality machine screw taps. High-speed steel with ground threads. Not to be confused with ordinary cut threads or carbon steel taps. Use catalog number **32B150** and specify thread desired.

Thread	Screw	Threads/Inch	Type	Net Each	Lots 12
0-80	#0	80	NF-UNF	\$4.65	\$4.15
1-72	#1	72	NF-UNF	4.35	3.90
2-56	#2	56	NC-UNC	3.50	3.15
3-48	#3	48	NC-UNC	2.95	2.65
4-40	#4	40	NC-UNC	2.40	2.15
5-40	#5	40	NC-UNC	2.40	2.15
6-32	#6	32	NC-UNC	1.80	1.60
8-32	#8	32	NC-UNC	1.85	1.65
10-24	#10	24	NC-UNC	1.95	1.75
10-32	#10	32	NF-UNF	1.95	1.75

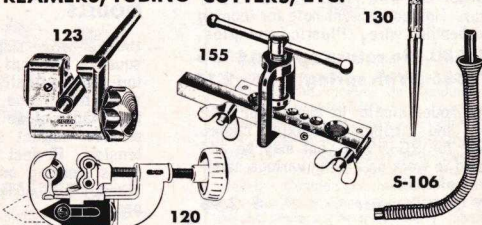
TAP WRENCH NO. 164—top quality tap wrench for taps from #0 to #14. Has self-equalizing tool steel jaws, knurled chuck sleeve, and sliding T-handle. Fully polished. Overall length 2-1/2". \$3.10

TRI-TAP TOOL NO. 47A—one tool cuts three popular threads used in electronic work—6/32, 8/32, and 10/32. Made from tool steel, heat treated, and hardened. Plastic handle. Useful tool. \$3.08

TINY TAP SET NO. TS-5—set of 5 tough, heat-treated steel taps for cutting inside threads. Includes 0/80, 1/72, 2/56, 3/48, 4/40 taps and jewelers type handle in desk stand. Moody. \$12.95

TINY DIE SET NO. 71—set of 5 tiny, tool-steel dies to match taps above. Includes 0/80, 1/72, 2/56, 3/48, and 4/40. Dies are held with any 5/8" wrench. Packaged in plastic case. \$24.00

REAMERS, TUBING CUTTERS, ETC.



T-HANDLE REAMER NO. 130—removes burrs from small holes, tubing. Also used to enlarge and countersink holes. T-handle gives leverage for turning. Diameter 1/4 to 1/2". \$3.65

MIDGET TUBING CUTTER NO. 123—for close-quarter work where ordinary cutters will not fit. Requires only 1/4" clearance. Capacity 1/4" to 1/2" o.d. tubing. \$2.65

REGULAR TUBING CUTTER NO. 120—alloy steel cutting wheel and tool steel reamer. For use on copper and other thin-wall tubing. Capacity 1/8" to 1 1/4" o.d. tubing. \$3.25

FLARING TOOL SET NO. 155—heavy wing nuts permit quick opening of the plated steel bars. Has tubing capacity of 3/16, 1/4, 5/16, 3/8, 1/2, and 5/8" o.d. \$8.35

TUBING BENDER SET NO. S-106—set of 6 oil-hardened tubing bender springs from 1/4 to 3/4". Just insert copper or other thin-wall tubing into spring and bend. No kinking or collapsing. \$4.25

JENSEN PAYS THE SHIPPING CHARGES!



WIRE STRIPPERS

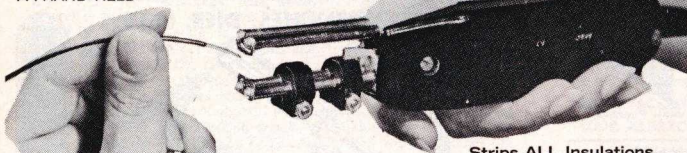
STRIPALL

HAND-HELD THERMAL STRIPPERS



STANDARD MODEL TW-1

- LONG LIFE, LOW-COST BLADES, EASILY REPLACED
- THERMAL WIRE STRIPPING TO AEROSPACE AND MIL-SPEC STANDARDS
- RUGGEDLY BUILT FOR PRODUCTION USE
- SELF-CONTAINED
- ... HAND-HELD



Strips ALL Insulations . . .

STRIPALL combines high production rates with reliable, nick-free performance to Aerospace standards—even for the finest wires. The STRIPALL is self-contained, requiring no external transformers or power supplies. Use it for all wires from #12 to #43 AWG, without fear of oxides, nicks, or deformation. The cut is clean and square, with no sleeving melted into the wire strands. An adjustable wire-gage stop prevents blades from contacting or exerting any pressure on the conductor itself. Another stop sets the length of insulation slug to be removed from the end of the wire.

The STRIPALL blades heat in less than two seconds to 1700° F. When stripping temperatures of less than 1700° are required, the input voltage to the STRIPALL may be reduced with a "Variac" or other device—or you may purchase the 44B713 model which comes complete with SCR controller. STRIPALL blades are long lasting, inexpensive, and easily replaced.

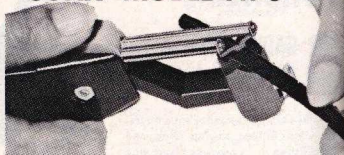
For operation on 115 V. AC. With 3-wire grounding-type cord, ready to operate.

44B712 (Less temp. control) . . \$62.50

44B713 (With SCR control) . . . 89.50

44B715 BLADES — \$2.20/PR.

"COAX" MODEL TW-6



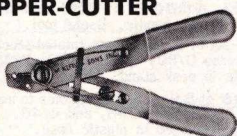
This model operates on the same principle as the TW-1 at left, except that it is designed for slitting and removing outer coverings of cables. A special fixture accepts the cable in either of two ways. In one position the outer covering is cut along its circumference as the operator turns it in the fixture. In the other position the covering is slit as the operator pulls the cable along the fixture. Thus, the cable outer covering is quickly and accurately removed, without leaving ragged edges or damaged conductors. Cables up to 3/8" diameter are accommodated, and any insulation material (high or low temperature) is easily handled. Offered in two models—with and without SCR temperature control. For 115 volts AC. With 3-wire grounding-type cord.

44B717 (Less Temp. Control) \$73.50

44B718 (With SCR Control) 105.00

44B720 BLADE 4.40

STRIPPER-CUTTER



Extremely popular, compact wire stripper. Positive adjustment presets tool for any wire AWG #10 to #20 or finer. Has convenient hole for looping and bending wire. Plastic hand grips.

37B580 (No return spring) \$1.76

37B585 (With spring) 2.10

New model similar to above, for cutting and stripping coaxial cable. Made for RG-59/U, but may be adjusted to work on all the various small sizes of coax.

55F Coax Stripper \$ 2.95

TELVAC SELF-ADJUSTING



TWO MODELS

Unique wire-stripping pliers. Just squeeze and pull. Self-adjusting feature automatically adapts to any wire size within range. A set of narrow cutting blades close in around the wire to provide correct stripper opening and tension. Perfect for electronic technicians working on many different wire sizes. Both models have vinyl cushion hand grips.

MODEL T-52

This model used for larger wires AWG #8 through #24 \$ 9.95

MODEL T-56

This model used for finer wires AWG #18 through #28 \$12.95

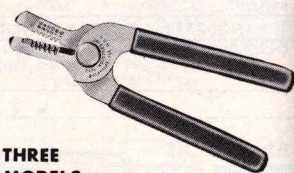
REPLACEMENT BLADES

Replacement blade assemblies include pair of blade sets and new pins to hold blades in place. Use 1700 for stripper T-52 and 1760 for stripper T-56.

1700 \$ 3.65

1760 5.15

IDEAL "T" STRIPPERS



THREE MODELS

Sturdy, compact, inexpensive wire strippers for use by electricians, technicians, and even for production. Constructed of hardened steel for rugged duty and long service. A separate notch is provided for each wire size in the range. Comfortable plastic grips insure safe handling. Offered in three different models. 45B080 handles solid wires from AWG #10 through #18. 45B090 takes stranded wires from AWG #16 through #26. 45B100 is for solid conductor telephone-type wires from AWG #22 through #30. These strippers are excellent for tool kits.

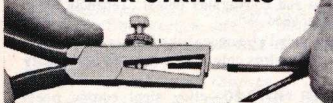
45B080 \$ 3.90

45B090 3.90

45B100 4.25

(Lots 10 of a kind, deduct 10%)

PLIER STRIPPERS



Squeeze, twist, and pull! Adjustable stop protects conductor. T-22 is 6" long and used on wires AWG #8 to 22. New petite model T-32 is 5" long and used on wires #14 to 28. Cushion grips.

T-22 \$ 6.25

T-32 7.50

CRIMPING TOOL- WIRE STRIPPER TERMINAL KIT



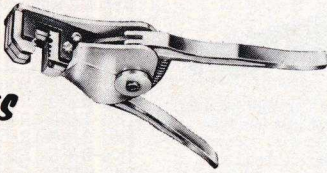
This fine assortment of insulated solderless terminals contains 500 single-grip styles in 20 different types and sizes and it includes the VACO No. 1963 crimping tool. The tool crimps both insulated and non-insulated terminals, and it also strips wires from 10 gauge to 22 gauge. In addition, the tool cuts wires and cuts 6 different sizes of machine screws. Tool is chrome plated and has plastic handle grips. The entire kit comes in a sturdy metal box with hinged cover. A specification chart is included in the lid.

- 36B347 COMPLETE KIT \$44.50
- 36B351 VACO TOOL ONLY 6.25



Hand Strippers

Demand the finest! Ideal STRIPMASTER grips the wire, cuts the insulation, and strips off the slug with one squeeze of the handles. One light squeeze strips wire clean up to 7/8". Automatic feature holds jaws open for removing wire without crushing end. Six models.



ECONOMY STRIPMASTER

This model is extremely popular with technicians and service engineers. Low cost, yet built to production-quality standards for stripping radio and instrument wires, automotive cable, aviation wiring, and telephone wires (not recommended for Teflon-covered wires). Strips up to a full 7/8" with one light squeeze. Two models offered. 45B201 takes wires AWG #16 to #26. 45B309 takes wires AWG #20 to #30.

- 45B201 (#16-26) \$9.65
- 45B309 (#20-30) 9.65

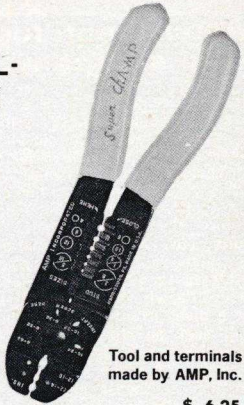
CUSTOM STRIPMASTER

These four professional models recommended for the most accurate stripping jobs. Specially designed to strip without nicking or scraping the wire, and without marking the insulation. Broad jaws have extreme holding power. 45B207 is for plastic and fiberglass insulations AWG #16 to #26. 45B320 is for plastic and fiberglass insulations AWG #26 to #30. 45B211 is for Teflon* type "E" insulations #16 to #26. 45B330 is for Teflon* "E" insulations #26 to #30. (Teflon* wires MIL-W-16878)

- 45B207 (#16-26 plastic) \$28.75
- 45B320 (#26-30 plastic) 28.75
- 45B211 (#16-26 Teflon*) 28.75
- 45B330 (#26-30 Teflon*) 28.75

CRIMPING TOOL- WIRE STRIPPER

One of the most useful tools you can own! Has four important functions: CRIMPS SOLDERLESS TERMINALS (the insulated type) in a variety of sizes—CUTS AND RE-THREADS BOLTS in sizes 4-40, 6-32, 8-32, 10-32, and 10-24—CUTS WIRES—STRIPS WIRES from #10 to 22 using a 6-hole accurately-formed stripping die built into the handle. Also has useful wire and stud information engraved into the tool. With plastic-coated handle grips.



Tool and terminals made by AMP, Inc.

- 80B460 TOOL \$ 6.25
- 80B783 TERMINALS (Assorted box of 60) 5.95

"PLIKE" STRIPPER- CRIMPER

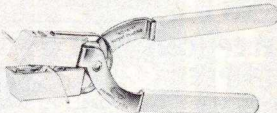


A 4-in-1 tool! Has serrated needle-nose plier jaws for gripping, pulling, bending. Also has crimping feature for all types of solderless terminals. Cutter has 3/8" sturdy steel edge that takes a wide variety of wire sizes. Stripper has 6 convenient holes for solid wires AWG # 12-22 and stranded wires AWG #14-24. High carbon steel. Plastic grips.

- 40B155 "PLIKE" \$3.86



CLAUSS "NO-NIK"



A new series of production-line wire strippers that removes insulation mechanically without nicking the conductor! This is accomplished by accurately designing tools to strip one wire size only. Cutting apertures are accurate to .00015". Assembly is permanent and no adjustments of any kind are ever needed. Cushion grip handles are color-coded to blade diameter as listed below. Select blade diameter which is marginally larger than conductor (write for instruction leaflet). Add size to cat. no.

Dia.	Color	Dia.	Color
.010	light blue	.025	light green
.012	white	.028	black
.014	dark green	.031	tan
.016	orange	.034	pink
.018	yellow	.037	grey
.021	royal blue	.044	dark brown
.023	maroon	.054	clear

- CAT. NO. NN \$13.50

*REG. TRADEMARK OF DUPONT

NOW YOU CAN CHARGE IT!



WIRE STRIPPERS

centrifugal

About centrifugal wire strippers . . .

JENSEN centrifugal wire strippers use the "weightlessness" principle to control removal of insulation. They are used principally for fast stripping of varnish insulation from solid "magnet" wire, and find greatest application in the production of motors, transformers, relays, choke coils, etc. A powerful motor drives an arrangement of three counter-balanced knives which close in around the wire by centrifugal force. At a given motor speed the blades will seek an equilibrium position, corresponding to a particular wire diameter. A faster motor speed will provide a deeper cut, and vice versa. An adjustable stop positively limits the blade travel so that the conductor cannot be damaged. Once the proper motor speed has been selected and the stop properly set, the operator simply inserts the wire, presses the thumb button, and slowly draws the wire out of the tool. The varnish coating will be cleanly peeled off.



MX-0 FOR VARNISH, LACQUER, AND FILM INSULATIONS

Compact, hand-held model for production-line stripping of varnish and lacquer insulations on solid wire. Furnished with KG-2 head for use on wires AWG #12 to #24. (See other heads below.) Motor operates on 50 to 115 volts AC. Use M2-B speed control box (below) or other variable-voltage source to control motor speed. Furnished with 3-wire grounding-type cord and plug.



MX-0 WIRE STRIPPER . . . \$109⁰⁰

SPEED CONTROL



M2-B \$ 19.95

Solid-state control with full-wave output (no voltage loss at maximum setting). Adjusts wire stripper motor from 0 to full RPM. With 3-wire cordset. Fused. Rating 5 A. Also useful on soldering irons and other small power tools. A useful shop accessory.

TELEPHONE-WIRE STRIPPER

This model designed for fast, accurate stripping of solid-conductor telephone-type wires. Complete stripper looks just like MX-0 above, but is fitted with special head as illustrated. Each head is designed to accept just one type of wire. Precision collet at front of head guides wire accurately into stripping position. Tiny knife blade inside head cuts a precision circle into insulation without touching conductor. A special stop sets length of insulation segment to be removed. Just insert wire into hole and pull it out again. Wire is stripped instantly and precisely, without conductor damage. For 115 V. AC. May be used with M2-B speed control above.

MX-T STRIPPER (Specify head desired) \$71.00



HEADS

Type	Description
20-1	Head for #20 AWG. Insulation diameter .058"
24-1	Head for #24 AWG. Insulation diameter .042"
24-2	Head for #24 AWG. Insulation diameter .035"

REPLACEMENT HEADS (Specify type) \$17.50

Replacement knife blades for heads above. Be sure to specify head type with order. **CAT. NO. MX-15** **EA. \$1.65**

REPLACEMENT CUTTING HEADS



Replacement carbide cutting heads for the MX-0 stripper. For removal of film insulations—enamel, lacquer, Formvar, etc.

Cat. No.	For Wire Sizes	Net Each
KG-0	AWG #30 and finer	\$42.50
KG-1	AWG #18 through #30	42.50
KG-2	AWG #12 through #24	42.50

A sharpening service and individual replacement blades are also available. See below and write for additional information.

ACCESSORIES AND PARTS

Replace worn-out parts and order special accessories from the table below.

Cat. No.	Description	Net Ea.
7055	Wire-twisting hook accessory	\$ 3.10
KG-0-A0	Replacement arm blade for KG-0 head	7.70
KG-1-A0	Replacement arm blade for KG-1 head	7.70
KG-2-A0	Replacement arm blade for KG-2 head	7.70
KG-0-FS	Factory sharpened head (trade-in price)	27.50
KG-1-FS	Factory sharpened head (trade-in price)	27.50
KG-2-FS	Factory sharpened head (trade-in price)	27.50
7045	Replacement motor for MX-0 or MX-T	36.50
7115	Head adjusting tool	3.25

See also special heads for telephone wires described at left.

PRODUCTION BENCH STAND

Facilitates continuous production stripping by freeing both hands. Base is easily mounted to workbench. Will take MX-0 or MX-T stripper. Switch control arm for adaption to foot pedal operation is included. Foot pedal and connecting wire are not included.



MX-12 STAND \$21.50

JENSEN TOOL TIPS

Misc. Data

Wire and Insulation Data

COLOR CODING

Color	Significant figure	Decimal multiplier	Tolerance	Voltage rating	Character-istic
Black	0	1	± 20%	-	A
Brown	1	10	± 1%	100	B
Red	2	100	± 2%	200	C
Orange	3	1,000	± 3%	300	D
Yellow	4	10,000	GMV	400	E
Green	5	100,000	± 5%	500	F
Blue	6	1,000,000	± 6%	600	G
Violet	7	10,000,000	± 12.5%	700	-
Gray	8	0.01	± 30%	800	I
White	9	0.1	± 10%	900	J
Gold	-	0.1	± 5%	1000	-
Silver	-	0.01	± 10%	2000	-
no color	-	-	± 20%	500	-

GMV=guaranteed minimum value

DECIMAL EQUIVALENTS

1/32 =	3/8 =	3/75	23/32 =	7/1875
1/16 .03125	13/32 .40625	3/4 .75	3/4 .75	
3/32 .09375	7/16 .4375	25/32 .78125	13/16 .8125	
1/8 .125	15/32 .46875	13/16 .8125	843/5 .9375	
5/32 .15625	1/2 .5	27/32 .84375		
3/16 .1875	17/32 .53125	7/8 .875		
7/32 .21875	9/16 .5625	29/32 .90625		
1/4 .25	19/32 .59375	15/16 .9375		
9/32 .28125	5/8 .625	31/32 .96875		
5/16 .3125	21/32 .65625	1		
11/32 .34375	11/16 .6875	1.0		

SIZE AND RESISTANCE

AWG No.	DIAMETER INCHES	OHMS PER 1000 FT.*	AWG No.	DIAMETER INCHES	OHMS PER 1000 FT.*
40	.00315	1049.0	20	.03196	10.15
38	.00397	659.6	18	.04030	6.385
36	.00500	414.8	16	.05082	4.016
34	.00631	260.9	14	.06408	2.525
32	.00795	164.1	12	.08081	1.588
30	.01003	103.2	10	.1019	.999
28	.01264	64.9	8	.1285	.628
26	.01594	40.8	6	.1620	.395
24	.02010	25.7	4	.2043	.249
22	.02535	16.1	2	.2576	.156

*Standard annealed copper at 20° C.

PLASTIC INFORMATION

TRADE NAME	COMPOSITION	SOFTENING POINT °C
BAKELITE	PHENOL-FORMALDEHYDE	135 (D)
FORMICA	MELAMINE-FORMALDEHYDE	190
FORMVAR	POLYVINYL FORMAL	125 (D)
KEL-F	POLYCHLORO TRIFLUOROETHYLENE	65 (D)
MELMAC	MELAMINE-FORMALDEHYDE	75 (D)
NYLON	POLYHEXAMETHYLENE-ADIPAMIDE	105 (D)
PLEXIGLASS	POLYMETHYL METHACRYLATE	85 (D)
POLETHYLENE	—	54 (D)
POLYSTYRENE	—	150
PVC	GEON, PARAPLEX	85
SARAN	VINYLDENE-VINYL CHLORIDE COPOLYMER	300
STYROFOAM	FOAMED POLYSTYRENE	D — DISTORTION OF SHAPE
TEFLON	POLYTETRAFLUOROETHYLENE	

SOLDERING IRONS

The principal components of a soldering iron are the handle, the power cord and heating element (if electrical), the shaft, and the tip. Soldering irons come in many sizes and shapes. In early years they were externally heated (in a furnace or from a blowtorch). Today, most soldering irons have a resistance heating element.

DICTIONARY DEFINITION: A tool used to melt low-temperature metal alloys.

IN OTHER LANGUAGES: (electric soldering irons)

German	LötKolben
French	For à souder
Spanish	Soldadori
Russian	Электрический паяльник
Italian	Soldatoio

Glossary of Soldering Iron Terms

BIT

See tip.

CHISEL

Refers to shape of tip end.

CLAD

Usually means iron-clad (see iron plated).

CORK

Refers to handles which have a ring of cork around them to reduce transmission of heat to operator's fingers.

COPPER ABSORPTION

Refers to the tendency of tin-lead alloys to absorb a small amount of the copper tip each time a joint is made.

CUP

A small solder pot, or special crucible tip.

DEFLECTOR

A shield (located just in front of the handle) to reduce handle temperature.

DESOLDERING

Refers to tools used to remove solder from joints. It may or may not have its own heating capability.

DIAMOND

Refers to shape of tip end.

DOUBLE FLAT

Refers to shape of tip end.

FREEZING

Refers to tendency of tips to stick to soldering iron shank due to oxidation of tip.

GUN

A soldering tool which is shaped like a pistol, and/or which has a built-in transformer and uses a portion of the secondary circuit itself as the tip.

HOT PLATE

A soldering technique whereby the "joint" is heated directly on a hot surface with no need for a separate soldering iron.

INDUCTION

A soldering system which uses the workpiece as the secondary of a transformer, converting electrical energy to heat.

IRON-PLATED

Refers to tips so plated to prevent absorption of copper into the joint.

LOW-SULPHUR

Usually refers to tip-cleaning sponges which will not contaminate precious metal components.

LOW VOLTAGE

Refers to soldering iron elements designed to operate at voltages less than normal power line voltage (usually 6, 12, or 24 volts).

MAINS

British equivalent of "power line".

NEMA

Refers to a 3-wire grounding plug approved by National Electrical Manufacturers Association.

NICHROME

A resistance wire used for electrical heating elements.

NICKEL-PLATED

Refers to tips plated principally to improve appearance, but with some corrosion resistant benefits.

PENCIL

Small soldering iron that approaches an ordinary lead pencil in size and weight.

POLARIZED

Refers to low-voltage soldering irons which have one side of the supply voltage electrically connected to the shaft and tip of the iron.

POT

A melting crucible for solder.

PULSE DOT

A soldering system which provides heat to the tip for a carefully-controlled length of time, as may be required to match the work.

PYRAMID

Refers to shape of tip end.

RECOVERY

The amount of time needed for a tip to regain its maximum tip temperature after heat is drained out of it during the working cycle.

RESISTANCE

Usually refers to a soldering device which passes a large current through the work itself to create heat directly in the work and thus melt the solder.

SINGLE-FLAT

Refers to shape of tip end.

SOLID NICKEL

Refers to nickel tips, characterized by long life, little corrosion, but less heat transfer.

STRAIN RELIEF

Refers to means for holding the power cord so that stress will not be transmitted to the internal connections of the soldering iron.

TEMPERATURE CONTROLLED

Soldering iron with means for regulating the tip temperature.

THERMOSTATICALLY CONTROLLED

Soldering iron with built-in device to hold tip temperature at some desired value.

THREE-WIRE

Refers to power cords which have a ground wire.

TINNING

Application of solder to a new tip when it is first heated.

TIP

The working end of the soldering iron—usually removable.

TRANSFORMER

Refers to low-voltage soldering irons that require a step-down transformer.

TRANSFORMERLESS

Refers to irons (usually low-voltage) which do not rely on a transformer, but instead use an SCR device to lower the line voltage.

TWO-WIRE

Refers to power cords which do not have a ground wire.

ULTRASONIC

A soldering iron which induces cavitation in molten solder by high frequency vibration. Removes oxides and eliminates the need for flux.

WAVE

Refers to a soldering technique which applies molten solder automatically to circuit boards.

SOLDERING IRONS

Ungar

For the finest in
soldering iron versatility...

IMPERIAL

proven and preferred...
where reliability counts

A proven production-line tool, combining light weight, small size, dependability, and unusual versatility. The complete **IMPERIAL** iron consists of handle, 2-wire or 3-wire cord set, long-life plug-in heat cartridge, and tip. **IMPERIAL** components are readily interchanged to meet almost any requirement of electronic, instrument, or aerospace assembly operations.

COMPLETE IMPERIAL SOLDERING IRON

Order by catalog number 46B100 and receive complete set of Imperial components—handle, 2-wire cord set 45 watt element, and a copper tip. For 3-wire cord set, use catalog number 46B103.

46B100 IMPERIAL IRON (2-wire) \$ 12.95
46B103 IMPERIAL IRON (3-wire) 14.50

IMPERIAL COMPONENTS

Cat. No.	Description	Each	Lots 10
6100-1	Handle (turquoise)	\$ 2.64	\$ 2.20
6102-1	Cord set with plug, 2-wire (turquoise)	3.84	3.18
6103-1	Cord set with plug, 3-wire (turquoise)	5.64	4.70

Cat. No.	Description	Each	Lots 10
6200	45-watt plug-in heat cartridge	\$ 7.08	\$ 5.90
6201	35-watt plug-in heat cartridge	7.08	5.90
6202	25-watt plug-in heat cartridge	7.08	5.90

IMPERIAL TIPS

Long life thread-on tips for the Imperial soldering iron. Made of Tellurium copper. All are iron clad and gold plated, except 6318 and 6324, which are bare copper.

Cat. No.	Description	Dia.	Each	Lots 10
6304	Micro-chisel, iron clad	3/64"	\$ 1.84	\$ 1.53
6318	Taper chisel, bare copper	1/8"	.82	.68
6319	Taper chisel, iron clad	1/8"	1.84	1.53
6324	Taper pyramid, bare copper	1/8"	.82	.68
6331	Screwdriver, iron clad	1/8"	1.84	1.53

Cat. No.	Description	Dia.	Each	Lots 10
6333	Needle, iron clad	1/8"	\$ 1.84	\$ 1.53
6366	Taper chisel, iron clad	3/16"	2.18	1.82
6473	Taper chisel, bare copper	3/8"	1.00	.83
6482	Micro-spade, iron clad	3/64"	1.84	1.53

"Standard Line" Soldering Tools

Proven.....

ON THE PRODUCTION LINES
OF THE ELECTRONIC INDUSTRY

Complete soldering iron—includes handle, 2-wire cord set, 37-1/2 watt element, and 1/8" tiplet.
46B200 \$ 6.30

STANDARD-LINE COMPONENTS

Cat. No.	Description	Each	Lots 10
776	Red handle and cord set, cork grip	\$ 3.00	\$ 2.50
777	Clean-room handle and cord set	3.00	2.50
535	25-1/2 watt element for #300 tiplets	2.46	2.05
1235	42 watt element for #300 tiplets	3.58	2.98
4035	50 watt element for #300 tiplets	5.20	4.33

Cat. No.	Description	Each	Lots 10
4045	50 watt element for #300 tiplets	\$ 5.20	\$ 4.33
533	27 watt element with fixed tip	2.46	2.05
1233	42 watt element with fixed tip	3.58	2.98
4033	50 watt element with fixed tip	5.20	4.33
8001	Anti-seize tip compound, 1/2 oz. tube	1.24	1.03

STANDARD-LINE TIPS

Cat. No.	Description	Each	Lots 10
331	Pencil tip, 1/8" dia., copper	\$.42	\$.35
PL-331	Pencil tip, 1/8" dia., iron-clad	1.02	.85
333	Chisel tip, 1/8" dia., copper	.42	.35
PL-333	Chisel tip, 1/8" dia., iron-clad	1.02	.85
PL-338	Taper needle, 1/8" dia., iron-clad	1.02	.85

Cat. No.	Description	Each	Lots 10
PL-340	Micro-spade, 1/16" end, iron-clad	\$ 1.02	\$.85
823	Pyramid tip, 3/16" dia., copper	1.48	.40
PL-823	Pyramid tip, 3/16" dia., iron-clad	1.16	.97
824	Chisel tip, 3/16" dia., copper	.48	.40
PL-824	Chisel tip, 3/16" dia., iron-clad	1.16	.97

#7805 SOLDER-OFF

An economical desoldering bulb with TFE tip for safe removal of components from circuit boards and lugs. Use with any soldering iron.

#7805 SOLDER-OFF \$ 2.12
(In lots of 10, \$1.77 each)

SOLDERING IRON STANDS

Double safety guard protects operator against accidental burns and also protects iron against breakage. Models for Imperial and standard line.

6800 IMPERIAL STAND \$ 3.26
8000 STANDARD-LINE STAND 3.16

NOW YOU CAN CHARGE IT!



SOLDERING IRONS

Weller PENCIL Soldering Iron

"LOW VOLTAGE"

TEMPERATURE CONTROLLED

Exclusive Weller closed loop system automatically controls output and temperature at a choice of 600, 700, or 800° F. Temperature is changed simply by selection of the proper heat-sensitive tip. This iron will not "heat up" in its stand, and will not "cool down" when used for steady, fast rate soldering. Low-voltage design provides maximum safety and elimination of leakage currents which might damage sensitive circuitry. Complete with stand (transformer in base), pilot light and switch, 3-wire cordset, 700° tip, and sponge. For 120 volts 50-400 Hz.



TYPE
WTCP-L

47B412 TEMPERATURE-CONTROLLED IRON (WTCP-L) \$33.15

REPLACEMENT TIPS for temperature-controlled iron

Temperature	1/16" Dia.	3/32" Dia.	1/8" Dia.	3/16" Dia.
600°	PT-A6	PT-B6	PT-C6	PT-D6
700°	PT-A7	PT-B7	PT-C7	PT-D7
800°	PT-A8	PT-B8	PT-C8	PT-D8

Select tips from table above by matching desired diameter and temperature to find catalog number.

REPLACEMENT TIPS ABOVE . . . \$1.20

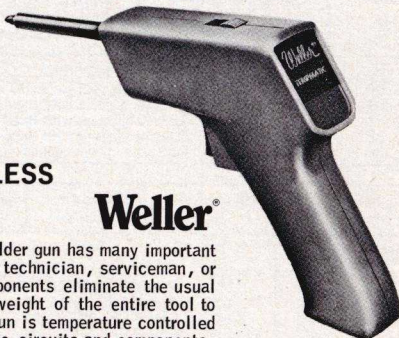
REPLACEMENT PARTS AND ACCESSORIES

Cat. No.	Description	Each
TCP1	Soldering pencil only (for 24 V.), less transformer base	\$15.80
SW60	Switch assembly (controls temperature)	3.75
HE60	Heating element	3.41
HA 1-T	Handle	1.50
BA60	Barrel nut assembly	1.60
SP60	Sponge	.40

NEW!

SOLID STATE TRANSFORMERLESS SOLDER GUN

Weller®



This Weller Tempmatic™ solder gun has many important features for the electronic technician, serviceman, or hobbyist. Solid state components eliminate the usual transformer, reducing the weight of the entire tool to less than 8 ounces. The gun is temperature controlled for use on modern solid state circuits and components. Fixed tips are double coated and tested for 30,000 connections. The basic gun has a 700° F. power head with 3/16" chisel-point tip, but a 600° head is offered as an optional accessory. Furnished with 3-wire grounding-type power cord.

47B620 SOLID STATE GUN WITH 700° HEAD \$15.95
47B640 POWER HEAD 700° WITH 3/16" TIP 9.65
47B645 POWER HEAD 600° WITH 1/8" TIP 9.65

SOLDERING GUN



WELLER

Famous Weller dual heat soldering guns. Instant heat feature allows soldering in seconds without waiting for tip to heat. Use low heat when working near sensitive parts and to lengthen tip life. High heat is instantly available when needed. A spotlight illuminates the work. Trigger switch turns gun off-and-on and selects desired heat range. Choose from two models—100/140 watts or 240/325 watts. Three-wire cords.

TYPES
8200
D-550

47B470 type 8200-3 . . . \$9.95
47B490 type D550-3 . . . 16.25

REPLACEMENT TIPS

Cat.No.	For Gun	Type	Pair
7135	8200	Copper	\$.90
8125	8200	Iron clad	.90
7250	D-550	Copper	.90

American Beauty



LITTLE DANDY® MINIATURE IRONS

Rugged, production-line soldering iron in miniature size. Featuring long-life heating element, stainless steel element casing, heat deflecting baffle, beautifully balanced hex handle with aerated finger grip, Paragon multi-clad long life tip, and 3-wire cord with NEMA plug. For 115 V. AC. Offered in three models from 25 to 60 watts with tip sizes from 1/8 to 1/4". Other tip sizes available.

Cat. No.	Watts	Tip Dia.	Each
49B477	25	1/8"	\$11.50
49B487	35	3/16"	11.60
49B497	60	1/4"	13.50

REPLACEMENT TIPS

Cat. No.	Description	Each
P-502	1/8" multi-clad	\$2.20
P-643	3/16" multi-clad	2.50
P-704	1/4" multi-clad	2.70

'ISOTIP" CORDLESS IRON



WAHL®

A completely portable soldering iron with no cord to get tangled or trip over. Heats in 5 seconds to tip equivalent of regular 40 watt iron. Makes up to 60 joints before internal nicad batteries need recharging. Tip has both electrical and heat isolation from nylon case. Has built-in work and pilot lights. Comes complete with tip, 60 Hz overnight recharger, and full instructions. Optional lighter adapter allows recharging from auto battery.

161B600 Cordless Iron	\$22.95
161B535 Regular Tip	2.00
161B545 Fine Tip	2.50
161B585 Auto Lighter Adapter	4.95

ANGLE SOLDERING IRONS

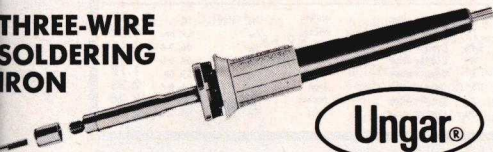


American Beauty

Tugged, production-grade soldering irons with angle design to reach hard-to-get-at spots. Bantam size and angle configuration reduce wear and fatigue when doing continuous soldering on production lines. Tuberoid and hardwood handle. Comes with 3-wire grounding-type cord and plug. Tips are 1/4" diamond Paragon (iron-clad, chromecoat, and pre-tinned). Choice of three wattages. Tip for 60 W. iron has 1/4" shank. For 110-120 volts.

19B510 (30-watt model)	\$16.20
19B520 (40-watt model)	16.20
19B530 (60-watt model)	18.50
P-108D (Tip for 30-40 watt irons)	2.20
P-95 (Tip for 60 watt iron)	2.90

THREE-WIRE SOLDERING IRON



Ungar®

Something our customers have wanted for a long time—a three-wire version of the popular Ungar standard-line soldering iron. Has molded phenolic handle with roll-proof pastel octagonal grip. Grounding feature eliminates static-induced currents that can damage MOSFET and other IC components. This iron comes less tip, but two adapters allowing it to accept any standard-line tip described on page 83 are available. (PL-113 listed below is most popular 1/4" chisel tip, iron plated. No adapter required to use this tip.) For 110-120 volts, 35 watts.

135 Soldering Iron	\$7.50
PL-113 Chisel Tip 1/8"	1.10
16B400 Adapter to Series 300 Tips	.35
16B401 Adapter to Series 800 Tips	.35

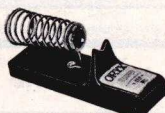
ORYX-50 TEMPERATURE CONTROLLED IRON



Thermostatic control is built in, keeping the temperature constant regardless of speed of soldering, or line voltage variations. The element is a husky 50 watts, providing fast initial heating and almost instant recovery from heavy loads. Operating temperature can be adjusted in seconds to any setting between 400° and 750° F., while the iron is running. Since the ORYX-50 temperature can be set considerable lower than that of the conventional uncontrolled iron, the tool is ideal for a wide variety of soldering assignments from delicate semiconductors to heavy lugs and terminals. An indicator light in the handle serves as a visual guide to the control system, as a temperature-setting aid, and as a safety feature by indicating clearly when the iron is left on. The ORYX-50 is fitted with a long-life iron-coated tip. Many optional iron-coated tips are available with working dimensions from 1/8" to 1/4", in both single-flat and double-flat styles. Offered in 2-wire and 3-wire models with U/L-approved cord sets. For 100-130 volts AC, ready to plug in. This newest addition to the ORYX line is physically small, light, and handles beautifully.

127B502 (Type 50 2-wire)	\$18.75
127B503 (Type 50-3 3-wire)	22.75

ACCESSORIES FOR ORYX-50



Iron-plated tips precision machined from a special copper alloy. S-50 safety stand has built-in wiping sponge.

SINGLE FLAT	DOUBLE FLAT
816-PL 1/4"	908-PL 1/2"
824-PL 3/8"	916-PL 1/4"
832-PL 1/4"	924-PL 3/8"
848-PL 3/8"	932-PL 1/4"
864-PL 1/4"	948-PL 3/8"

127B500 Stand (Type S-50)	\$8.35
SP-50 Sponge	.59
Iron-plated Tips (specify type)	3.18

PLUG-IN 115 V. MINIATURE IRON



One of the smallest non-transformer irons you can buy. Weighs only one ounce. Heats quickly to 725° F. Furnished with 1/2" "U" tip (nickel plated). Iron plated tips also available (see below). Standard model has U/L-approved cord set. Three-wire model does not include plug.

115-15J STANDARD 2-WIRE MODEL	\$ 11.95
115-15J-3 MODEL WITH 3-WIRE CORD (less plug)	11.95

REPLACEMENT TIPS AND ELEMENTS

Cat. No.	Description	Net Each
J	Copper alloy tip, 3/32" diameter end	\$1.86
J-PL	Same, but iron-plated for longer life	2.70
K	Copper alloy tip, 3/16" diameter end	2.22
115-10E	Replacement element 10 watts (special)	7.15
115-15E	Replacement element 15 watts (standard)	7.15

JENSEN PAYS THE SHIPPING CHARGES!



SOLDERING IRONS

miniature

Oryx industrial soldering instruments offer these important advantages:

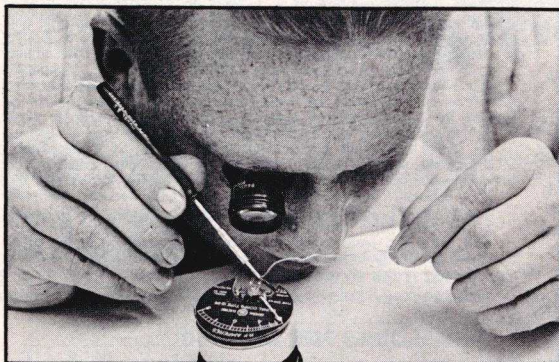
MINIATURE SIZE
FEATHER WEIGHT
HIGH EFFICIENCY
SAFETY

ORYX soldering irons are small and easy to handle as pencils. Their miniature size helps to speed any precision soldering operation. Damage to adjacent components is eliminated. If you can see it, you can solder it with ORYX!

A standard, utility-type 100 watt soldering iron weighs about 2 lbs. The so-called pencil-type irons typically weigh between 2 and 5 ounces. ORYX soldering irons, by contrast, weigh as little as 1/4 ounce. This true feather weight virtually eliminates hand fatigue. Workers can turn out many more joints per hour with fewer rejects.

All ORYX soldering irons utilize a unique element-in-the-tip design principle. By generating the heat within the tip, far fewer watts are needed to achieve results comparable to much larger irons. This principle also provides quicker heat recovery because the heat path between element and joints is so very short. The need for large insulating handles is eliminated.

ORYX low-voltage irons are polarized, making it possible to directly ground the shaft, tip, and one side of the heating element. This provides a maximum degree of safety, both to the operator and to delicate circuitry. The ORYX line of 115 V. plug-in models includes 3-wire styles whose shafts and tips may be connected to ground for safety.



Since their introduction in 1954, ORYX soldering irons have been widely accepted for production-line soldering of printed circuits, fine instrument assemblies, hairsprings, and all heat-sensitive components and devices. They pack a tremendous punch in a small package.

Assembly personnel like them because they are so very small and light. Model 6A, for example (the most popular model for normal printed circuit soldering), weighs only 1/4 ounce and is but 6 inches long, yet it provides a working tip temperature of over 600° F., and is used for continuous soldering of printed-board components. Twenty different tips are offered in sizes from 1/25 to 3/16" and in a wide variety of materials and finishes from bare copper to solid gold. ORYX low-voltage models feature extremely high efficiency, rugged elements, and polarized construction (allowing grounding of the working tip). Several irons may be operated from a single transformer or other AC or DC power source.

LOW-VOLTAGE, MINIATURE PRODUCTION SOLDERING IRONS

	Model	Volts	Watts	Temp.	Length	Weight	Tip Type	Tip Dia.	Net Ea.	12 or More
MICROCIRCUIT MODELS for joints having negligible mass.	SS	4.5	4.5	575°F.	4 3/4"	1/5 oz.	S	3/16"	\$8.95	\$8.35
	6	6	6	652°F.	6"	1/4 oz.	Fixed	3/16"	6.35	5.75
PRINTED CIRCUIT MODELS for normal component parts such as diodes, 1/4 and 1/2 watt resistors, transistors, etc.	6A	6	6	690°F.	6"	1/4 oz.	B	3/32"	8.95	8.35
	9-6	6*	8.3	750°F.	6"	1/4 oz.	A	3/32"	8.95	8.35
HIGH-TEMPERATURE MODEL for special solder alloys.	11-6	6	10	835°F.	6"	1/4 oz.	E	3/32"	11.35	10.75
HEAVY-DUTY MODELS for tube socket terminals, lugs, and 2 watt resistors, etc.	12-6	6*	12	700°F.	6 1/4"	1/2 oz.	C	3/16"	8.95	8.35
	18-6	6	18	800°F.	7 1/4"	3/4 oz.	F	3/16"	12.65	11.95

* 12-volt models also available on special order at no additional charge.



REPLACEMENT TIPS for low-voltage soldering irons

Type	Material	Plating	Diameter	For Model	Net Ea.
A	Copper alloy	Nickel	3/32"	9-6	\$.86
B	Copper alloy	Nickel	3/32"	6A, 9-6	\$.86
C	Copper alloy	Nickel	3/32"	12-6	1.07
D	Solid Nickel	—	3/32"	11-6	2.64
E	Solid Nickel	—	3/32"	11-6	2.64
F	Copper alloy	Nickel	3/16"	18-6	1.85
F-1	Copper alloy	Nickel	3/32"	18-6	1.85
P	Copper alloy	Nickel	3/16"	5S, 6A	.86

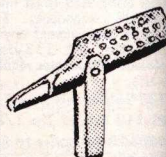
Type	Material	Plating	Diameter	For Model	Net Ea.
S	Copper alloy	Nickel	3/16" (short)	5S	\$.97
T	Gold end, copper body	Nickel	1/32"	5S, 6A	4.26
V-PL	Copper alloy	Iron	3/32"	6A, 9-6	2.16
W	Copper alloy	Bare (NASA)	3/32"	6A, 9-6	.94
X	Copper alloy	Nickel	1/32"	5S, 6A	1.19
X-PL	Copper alloy	Iron	1/32"	6A, 9-6	2.35
Z	Copper alloy	Nickel	1/32"	5S	1.26
Z-PL	Copper alloy	Iron	1/32"	6A, 9-6	2.35

TRANSFORMERS AND STAND

6-VOLT TRANSFORMER — Model 54203-6V. Output 6-volts, 18-watts. For use with all 6-volt Oryx tools. Operates on 115 V. AC. with 4 1/2' cord set — ready to plug in. Clip-holder on top for ironNet \$8.85 ea.

TAPPED TRANSFORMER — Output 4 1/2 to 6-volts in 1/2 v. steps. For exact temperature control on all Oryx 6-volt tools. Operates on 115 V. AC — ready to plug in. Model 54204-TNet \$9.35 ea.

S-1 SOLDERING IRON STANDNet \$4.35 ea.

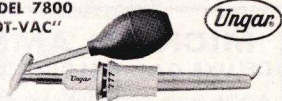


JENSEN TOOLS and ALLOYS

4117 N. 44th Street, Phoenix, Arizona 85018

DESOLDERING TOOLS

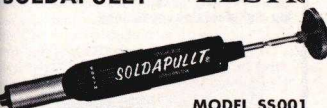
MODEL 7800
"HOT-VAC"



Use this UNGAR tool to remove parts from circuit boards and terminals. Vacuum action lifts solder from board. Special coating on tip prevents solder from sticking. Heater is 37-1/2 watts. For 115 volts AC. Complete tool for one-hand operation. \$17.95

"SOLDAPULL"

EDSYN



MODEL 55001

For rework or removal of circuit components. Simply heat the joint, hold tip against the joint, and press trigger to remove solder. Tip is 3/16" long and has 1/16" opening. "Reload" by pressing plunger to bench. Uses tips 59B031, 59B053 listed below \$5.95

DELUXE

"SOLDAPULL"

MODEL DS017



Similar to above, but plunger cannot pop back to strike operator. Uses tips 59B031 or 59B053. Tip 59B034 is for old-style deluxe soldapull.

59B033 Deluxe Soldapull \$9.95

59B031 Replacement Tip 1.50

59B053 Ceramic Tip 2.95

59B034 Tip for old Deluxe Model 2.00

"SOLDAVAC"

MODEL SV-026



Operates on same principal as SOLDAPULL but has less capacity. Uses 59B031 tips. \$4.95

59B029 \$4.95

"RETIP"

TIP

CLEANER



Oxides and contaminants are instantly removed from soldering iron tips with this new aid. Simply insert the tip and withdraw. The tip will be clean and evenly tinned. No thermal shock. No abrasives. Takes tips up to 1/4" diameter. Extra cartridges available. \$6.00

49B651 RE-TIP \$6.00

49B650 CARTRIDGE 2.89

"SODER-WICK"



"Soder-Wick" will desolder all sizes of electronic joints in one second without flux. Flux spatter is eliminated and the desoldered joint is solder-free. Simply touch "Soder-Wick" to heated joint and solder is drawn up into the wick immediately. Available in four sizes to match the joint and quantity of solder to be removed. Specify size when ordering. Each roll includes 5 feet of "Soder-Wick".

Size	Type of Circuit	Pad Size
#1	Microcircuits	Up to .060"
#2	Small p.c. boards	.060 to .125"
#3	Normal p.c. boards	.125 to .190"
#4	Large p.c. boards	.190" and up

40-5 (SPECIFY SIZE) \$1.49
(10-25, \$1.20 ea. 25 and up, \$1.00 ea.)

Princess®

TRANSISTOR-IC DESOLDERING TIPS

For safe, easy removal of circuit-board components. Select from these six specially-designed tips. Most are iron clad, nickel plated, and tinned for immediate use. Use these tips with Ungar standard-line soldering elements #535, 1235, or 4035 listed on page 83.



Cat. No.	Use For	Price
6943	"T0" pkg., .600" dia.	\$2.97
6944	"T0" pkg., .500" dia.	2.97
6945	"T0" pkg., .375" dia.	2.97
6946	"T0" pkg., .280" dia.	2.97
6947	Slotted lead straightening	2.48
6948	In-line IC's - 16 pin	3.44

DESOLDERING KIT

Removes in-line IC's fast and clean. Desolders "T0" packages with ease. Desolders and straightens bent leads in a simple operation. This complete desolder kit contains a 3-wire grounded "Princess" handle, 15 watt heat capsule, and three desolder tips. Tips included are 6945, 6947, and 6948 from the above list. \$21.50

6939 \$21.50

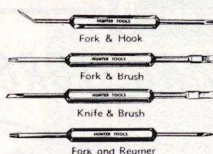
LIQUID DISPENSER

For fluxes and solvents. Pump action puts liquid in small holding bowl. Stops evaporation and prevents backflow into bottle. Capacity 4 oz.

60F \$4.35

SOLDERING AIDS

HI



These fine HUNTER soldering aids have hex-shaped handles—will not roll off bench. The working ends are stainless steel—solder will not adhere. Regular handles are 3/8 x 3". Micro handles are 1/4 x 3". Non-magnetic.

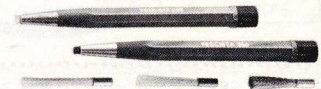
Cat. No.	Description	Price
51	Regular fork and hook	\$1.15
51A	Regular fork and brush	1.15
51B	Regular knife and brush	1.15
51C	Regular fork and reamer	1.15
51C1	Micro fork and hook	1.33
51C2	Micro fork and reamer	1.49
51-S	Set of 6 aids above	6.65
51D	Solder brush only	.36

SOLDER AID KIT

This 6-piece soldering aid kit is ideal for use in tool boxes. Wooden chuck-type handle holds aids at each end. Separate aids furnished include fork, knife, scraper, tracer, brush, and reamer. Furnished in pocket-size plastic case. \$3.95

348 \$3.95

SCRATCH BRUSHES



These unfrizzable scratch brushes are used for rust removing, deburring, polishing, erasing, and cleaning. Choice of three materials—steel, fiberglass, and nylon. Replacement tips available—see table.

Cat. No.	Description	Price
266	Steel-tip brush	\$4.05
267	Fiberglass-tip brush	4.05
268	Nylon-tip brush	4.05
266A	Replac. steel tip	1.10
267A	Replac. fiberglass tip	1.10
268A	Replac. nylon tip	1.10

TIP-CLEANING SPONGE

Surest way to clean soldering tips!
KLEEN-TIP



Removes oxidation and keeps soldering-iron tip clean. Eliminates burning rags and flying solder. Specially processed, slitted sponge. Complete with tray and non-skid bench-pad. Replacement sponges available.

400 SPONGE AND TRAY \$1.66

455 SPONGE ONLY67

LEAD CLEANER



Hunter braid-type cleaner for component leads. Makes soldering easier.

51-J \$2.75



NOW YOU CAN CHARGE IT!

SOLDERING EQUIPMENT

MICROFLAME

WELDING TORCH

USES MICRONOX™ AND BUTANE GAS TO WELD, BRAZE, SOLDER

MINIATURE TORCH SET is a completely self-contained unit which produces over 5000°F pin-point accurate flame using miniature gas cylinders.



\$22.50

One of the most unique tools introduced in recent years. A self-contained miniature gas welding torch that produces over 5000°F. in an accurate, pin-point flame. Used for lightweight cutting, welding, brazing, and soldering. The accurate, adjustable flame provides heat only where you need it—minimum danger to adjacent areas. Extremely compact—fits in tool box or pocket when not in use. Basic set contains torch plus two Micronox™ cylinders, one butane cylinder, two welding tips, a butane tip (for up to 2500°F flame using only butane gas), three solder brazing rods, flux dispenser, and a helpful instruction book. Gas cylinders are normally used in the ratio of two Micronox to one butane. Note: Federal regulations may restrict shipment of this material by air.

Cat. No.	Description	Net Ea.	Lots of 6	Lots of 12
24B220	Basic torch set (Model 1000)	\$22.50	\$19.95	\$15.95
24B260	Replacement welding tips (pkg. 3)	1.66	1.50	1.35
24B265	Replacement butane tip	2.25	1.95	1.65
24B267	Soldering iron tip assembly	3.95	3.55	2.85
24B270	Replacement cylinder gaskets (pkg. 6)	.66	.58	.50
24B240	Micronox™ cylinder	1.25	1.10	.90
24B245	Butane cylinder	1.25	1.10	.90
24B280	Silver alloy brazing sticks	1.50	1.35	1.15

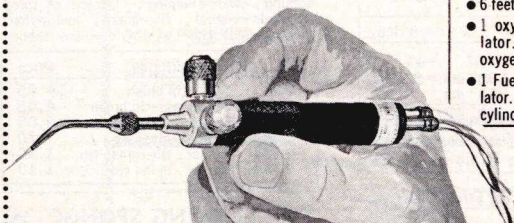
MICROFLAME® DELUXE GAS-WELDING KIT

A deluxe version of the basic welding torch described at left. Has everything necessary for lightweight welding jobs and do-it-yourself projects. This compact kit includes the basic Microflame torch, welding tips, butane tips, gaskets, bench bracket, spark igniter, brazing rods, six Micronox™ cylinders, three butane cylinders, and a "how to weld" instruction book. Fumished in a see-through plastic case. Microflame is a proven, professional welding torch. This kit opens up many possibilities in model making and precision repair jobs.



24B400 \$28.75

THE "Little Torch"



Complete Set Includes:

- Aluminum alloy Torch Body
- 2 copper tips
- 6 feet of plastic hose
- 1 oxygen Instrument Regulator. Fits any commercial oxygen cylinder.
- 1 Fuel Gas Instrument Regulator. Fits "B" Acetylene cylinder.

The Little Torch is a precision engineered, highly versatile instrument capable of doing virtually impossible tasks with ease. It can use four different kinds of fuels—acetylene, hydrogen, LP or natural gas—and provides different flame characteristics with each. It produces a perfectly controlled, completely stable flame with temperatures up to 6300°F., hot enough to melt commercially weldable metals, glass or even ceramics. Ideal for a wide range of jobs from miniature fabrication to aircraft maintenance. The Little Torch provides versatility, maneuverability, and needle point flame for precision welding, brazing, soldering or heating. Excellent in small microscopic work and for use in hard to reach places. **STARTER SET** includes torch, 2 copper tips, plastic hose, oxygen instrument regulator and fuel gas instrument regulator. Tanks not included.

BT285 STARTER SET \$165.00
BT275 TORCH ONLY LESS REGULATORS 60.00

TIP DATA

Cat. No.	Tip Size	Orifice Size	Gas Pressures (P.S.I.)		Consumption C.F.H. Ea. Gas	Net Ea.
			Oxygen	Fuel Gas		
BT-301	1	.003	2	2	.023	\$8.90
BT-302	2	.006	3	3	.087	8.47
BT-303	3	.011	3	3	.215	8.30
BT-304	4	.020	3	3	1.625	7.80
BT-305	5	.029	4	4	2.540	7.80

COMPLETE KIT WITH CYLINDERS

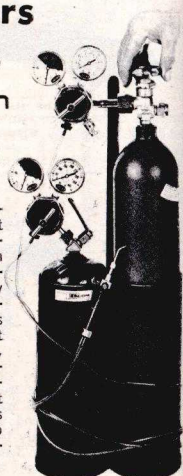
- Welds
- Brazes
- Solders
- Heats

FLAME

TEMPERATURE
up to 6300° f.

Consists of starter set BT-275 at left, plus two regulators, oxygen and acetylene cylinders. Handy tank holder included makes this Little Torch outfit highly mobile, convenient to handle. Each cylinder contains about 10 cu. ft. of gas (provides up to 435 hr. of operation).

BT280 —
KIT WITH CYLINDERS . . . \$295.00



MICROFLAME CUB BUTANE TORCH



super-tiny butane torch for soldering, brazing, sweating. Delivers precision-point accurate flame up to 2500° F. Tiny butane cylinder lasts as long as 60 minutes (depending on usage). This is the perfect tool for servicemen, field engineers, handymen. Takes up minimum space in toolbox or roll or pocket, and greatly expands the number of jobs that can be handled without being loaded down with heavy equipment and gas cylinders. The directional, adjustable flame can be rotated a full 360°. Torch is furnished with two butane tanks, a wind ward, instructions. Additional butane cylinders can be ordered from listing on previous page.

4B248 \$ 5.98

SOLIDOX™ ALL PURPOSE WELDING TORCH

**LOW-COST
SOLIDOX
WILL PAY FOR
ITSELF IN SAVINGS!**

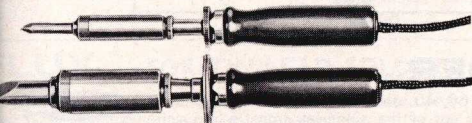


Now you can weld, braze, and silver solder with professional results at temperatures exceeding 5000° F. The compact SOLIDOX torch set weighs standard 14 oz. disposable tanks and special oxygen pellets to provide the intense heat needed for welding. The pellets are shaped like a candle and release two minutes of oxygen for each inch of length. This is a low pressure system. Total weight is only seven pounds, making the system ideal for portable welding, maintenance, and emergency cutting jobs. Will cut bolts up to 3/4" diameter. Each kit includes the basic torch, SOLIDOX pellets for approximately 100 minutes of welding, two welding tips, brazing rods, protective glasses, spark lighter, extra filter and tip cleaner, and operating instructions.

98B502 TORCH SET \$39.95
98B505 ASSORTED SOLIDOX PELLETS 3.50

HEAVY-DUTY SOLDERING IRONS

American Beauty



These heavy-duty soldering irons are indispensable for jobs that cannot be accomplished with a torch or where normal-size soldering irons do not provide sufficient heat. Use for antenna work, soldering ofassis and boxes, machine repair, sweating copper tubing, etc. Offered in two models: 100 watt model uses 3/8" diameter tip and 13" long. 300 watt model uses 7/8" tip and is 14-1/2" long. Tips furnished are nickel-plated copper. Both models have 3-wire cords with NEMA plugs. For use on 115 V.

9B498 100-WATT IRON \$ 18.40
9B499 REPLACEMENT 3/8" TIP92
9B500 300-WATT IRON 28.60
9B501 REPLACEMENT 7/8" TIP 5.00

American Beauty

SOLDER POTS

Finest quality industrial solder pots furnish fast, adjustable heat in a round shallow crucible that can easily be fixtured to meet your exact needs. Direct reading thermostat adjusts from 325 to 750° F. A convenient dross skimmer (not shown) lifts off for easy cleaning. Offered in two models having capacities of 1 lb. and 2-1/2 lbs. of solder respectively. Small model has 2-1/4" dia. crucible and consumes 320 watts maximum. Large pot has 3-1/2" dia. crucible and consumes 600 watts maximum. For 115 V. Both models furnished with 3-wire cord and NEMA plug.



49B504 SMALL POT \$ 58.00
49B506 LARGE POT 62.00

"GLO-MELT" RESISTANCE SOLDERING TOOL

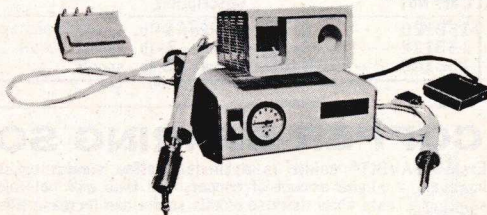


Resistance soldering generates heat within the work itself. Does not rely on passing heat from a large, inefficient soldering iron tip. Heat is instantaneous and is restricted to the joint itself. Soldering of small and complex parts is greatly simplified. The "Glo-Melt" electrodes generate heat only when contacting the work. Voltage is low. The tweezer-type handpiece is light. Complete system includes power transformer with infinitely-variable temperature control, tweezer handpiece with sponge-rubber finger grips, and .078" electrodes. Maximum power is 100 watts. For 115 V.A.C.

10S105 COMPLETE SET \$ 86.90
10S42 PKG. 6 REPLACEMENT TIPS 3.90

VACUUM DESOLDERING STATION

Weller®



A power desoldering station designed especially for printed circuit board repair. Famous Weller closed loop temperature control protects sensitive components. See-through solder collector is easy to clean or replace. Station operates from factory air and line voltage. Comes complete with twin safety tool holder, vacuum adjustment and gauge, tip and sponge holder, foot switch, indicator light, five assorted tips and instructions. Color of station is beige. Tool handles are cool blue. This system is ideally suited for factory repair and modification of circuit boards. Can pay for itself many times over on a single modification project.

47B740 \$245.00

JENSEN PAYS THE SHIPPING CHARGES!



SOLDER

ROSIN-CORE SOLDER 60/40 TO FEDERAL SPECIFICATION QQ-S-571d

The preferred solder for electronic assembly and repair. Has non-corrosive flux core. High tin content (60%). Melting temperature 370° F. Tensile strength 7600 p.s.i. Shear strength 5600 p.s.i. Hardness 16.0 BHN. Meets the exacting requirements of Federal Specification QQ-S-571 (latest). Approved for use of all Federal Agencies. Certificate of compliance furnished on request for orders exceeding 10 lbs.

KESTER "44" RESIN SOLDER

Meets every requirement for high speed, reliable soldering in every electronic and aerospace application. Features one of the most active resin fluxes on the market. Residue is immune to fungus growth and is absolutely non-corrosive and non-conductive. Furnished in 1-lb. quantities on metal reels. Standard core size is Kester 66 (P3). Also available in 4-lb. reels and core sizes 58 and 50.



Cat. No.	Description	Diameter	Price Each	Lots of 10, Each
15B100	Sn60, 66 core, 1-lb. spools	.025"	\$8.02	\$7.22
15B102	Sn60, 66 core, 1-lb. spools	.032"	7.18	6.46
15B104	Sn60, 66 core, 1-lb. spools	.040"	7.03	6.32
15B106	Sn60, 66 core, 1-lb. spools	.050"	6.80	6.12
15B108	Sn60, 66 core, 1-lb. spools	.062"	6.34	5.70

ERSIN "MULTICORE" SOLDER

Extremely popular with industrial engineers and service technicians throughout the world. Contains five cores of an exclusive, extra-active absolutely non-corrosive flux. The five cores provide ultra-thin walls between cores of flux and the work, which speeds melting and wets the work most effectively. Furnished in 1-lb. cartons, except 34 gauge (1/2 lb. cartons).



Cat. No.	Description	Gauge	Diameter	Price Each	Lots of 10, Each
16B200	Sn60, 1-lb. packages	16	.064"	\$6.23	\$5.60
16B202	Sn60, 1-lb. packages	18	.048"	6.55	5.90
16B204	Sn60, 1-lb. packages	20	.036"	7.17	6.45
16B206	Sn60, 1-lb. packages	21	.032"	7.48	6.73
16B208	Sn60, 1-lb. packages	22	.028"	7.95	7.15
16B224	Sn60, 1/2-lb. packages	34	.009"	12.01	10.80

NEW!
Needle-fine gauge
for microelectronics.

EUTECTIC SOLDER 63/37 ROSIN CORE

The "ultimate" tin-lead alloy. Contains 63% tin and 37% lead to provide a low melting temperature of 361° F. This is the only tin-lead alloy without a pasty range between solid and liquid. Used for soldering heat-sensitive components such as printed circuits, transistors, diodes, etc. The ideal solder for use with pencil-type soldering irons. Conforms to Federal Specification QQ-S-571d. Has activated resin core (Kester "44" Resin). Offered in three popular diameters.



Cat. No.	Description	Diameter	Price Each	Lots of 10, Each
15B120	Sn63, 66 core, 1-lb. spools	.025"	\$8.57	\$7.71
15B122	Sn63, 66 core, 1-lb. spools	.032"	7.49	6.75
15B140	Sn63, 66 core, 1-lb. spools	.062"	6.63	5.97

COPPER-BEARING SOLDER

Ersin "SAVBIT" solder is a tin-lead alloy similar to standard 60/40 electronic solder. It contains, however, a minute amount of copper, and thus will not take copper out of the soldering iron tip into molten solution. Tests show that use of this solder can increase life of copper soldering iron tips by 10 times or more. Copper-bearing solder is also stronger than regular tin/lead solder. Has five cores of non-corrosive flux.



Cat. No.	Description	Gauge	Diameter	Price Each	Lots of 10, Each
16B220	Savbit alloy, 1-lb. packages	16	.064"	\$6.00	\$5.40
16B222	Savbit alloy, 1-lb. packages	18	.048"	6.31	5.68
16B226	Savbit alloy, 1-lb. packages	22	.028"	7.41	6.66

JEWELERS' "TIX" SOLDER

The hardest soft solder on earth." Melts at 275° F. 100° below tin-lead solder), yet has very high bond strength over 4000 p.s.i. Solders to platinum, gold, silver, alnico, pewter, stainless steel. Stays white—never tarnishes. Exceptional wetting characteristics. Conductivity 7 times better than copper. Contains mostly indium. Kit includes 125 grains solder (about 6 3-inch sticks), ½ ounce flux, and ½ ounce anti-flux which inhibits flow of solder in unwanted places).

7B003 (TIX-3 KIT) \$ 8.00



CORELESS

Kester wire solder has no flux core. Tin-lead ratio 60-40. One lb. spools. Meets Fed. Spec. QQ-S-571d.



Cat. No.	Diameter	Price Each
15B160	.020"	\$ 8.95
15B164	.032"	7.16
15B168	.050"	6.80

PRINTED CIRCUIT 3% SILVER SOLDER



Preferred by many for p.c. work. Silver content provides superior wetting and flow—also reduces absorption of precious metals from circuit pads and components. Meets spec. QQ-S-571. Diameter .031" with "44 Resin" flux core. One-pound spool

15B170 \$10.88

"ACID" CORE SOLDER

Active, chloride-type flux penetrates the most tenacious oxide films. Not recommended for electronic applications unless corrosive flux residues can be completely removed after soldering. Composition 40% tin 60% lead. Diameter .125". One lb. spool.

5B180 \$ 6.25



MULTICORE" SOLDER CREAM



For critical soldering of gold and silver-plated surfaces, thick-film circuits, diode and tuner manufacturing, etc. The alloy solder is in a thixotropic vehicle that will spit or need stirring. Apply by syringe or screen printing. Soldering is instant, excellent spread. Clear flux residue. Alloy 62% tin, 36% lead, 2% silver. Recommended flow temperature 239° C. Offered in choice of 25 gram syringe or 500 gram jar. Thinner comes in a 2 oz. container.

Cat. No.	Description	Each
5B333	25 gram Syringe	\$ 8.75
5B335	500 gram Jar	77.00
5B338	2 oz. Thinner	6.60

MICROFLAME MINIATURE BRAZING ROD KIT



For electrical-electronic work, field service, jewelry repair, schools, etc. This handy kit includes 18 silver-solder sticks, 6 aluminum-solder sticks, a jar of silver-solder flux, a jar of aluminum-solder flux, a hot block, sandpaper, brush, and complete instructions. Recommended for use with small welding torches pages 88 and 89.

24B531 \$4.95

"KWIK-DRAW"



A handy-sized tube of Kester "44" resin core solder for the technician and serviceman. Tin 60% lead 40%. Popular toolbox or bench item.

15B900 \$.89

LMP SOLDER 2% SILVER

This ERSIN tin-lead alloy contains 2% silver, 62% tin, and 36% lead. It is used for soldering ceramics, etched circuits, and silver-coated surfaces. Has excellent flow characteristics due to silver content. Melting temperature 354° F. Gauge 18 SWG (.048"). 1-lb. spool.

16B230 \$11.25

HMP SOLDER

This ERSIN high melting-point solder is used to solder relays, capacitors, or transformers subjected to high temperatures. Also known as "Comsol" solder. Contains 5% tin, 93.5% lead, and 1.5% silver. Good flow characteristics. Melting temperature 565° F. Gauge 18 SWG (.048"). 1-lb. spool.

16B240 \$ 7.85

See also 24B280 Microflame alloy solder sticks offered on page 88.

FLUX FOR TIN-LEAD SOLDERS

Metals are covered with a non-metallic film or oxide which prevents the fusing of solder to the metal. This oxide must be released and removed instantaneously during the application of the solder. Core solders carry the necessary flux along with the solder. Other solders require external application of a suitable flux. Non-corrosive (resin) fluxes are active only at elevated temperatures. Corrosive fluxes continue to be active and electrically conductive at ordinary temperatures and must be thoroughly removed after soldering. All fluxes below manufactured by Kester.

Cat. No.	Description	Corrosive?	Size	Price Each
15B300	#1544 activated resin flux	No	4 oz. bottle	\$ 1.10
15B302	#1544 activated resin flux	No	1 pt. bottle	2.75
15B310	Zinc chloride "acid" soldering flux	Yes	4 oz. bottle	1.10
15B320	Stainless steel acid flux	Yes	4 oz. bottle	1.10
15B330	Soldering paste	Yes	2 oz. can	.33



NOW YOU CAN CHARGE IT!



JENSEN TOOL TIPS

METALS - SOLDERABILITY & MELTING POINT

METAL	SOLDERABILITY	M.P.	METAL	SOLDERABILITY	M.P.
MAGNESIUM	2	1204°F.	TIN	1	450°F.
BERYLLIUM	3	2343	LEAD	1	621
ALUMINUM	2	1215	STAINLESS	2	2550
ZINC	1	787	BISMUTH	1	520
CHROMIUM	3	2822	COPPER	1	1981
IRON	1	2795	STEEL	1	2760
CADMIUM	1	610	SILVER	1	1761
NICKEL	1	2645	GOLD	1	1945
COBALT	3	2714	ANTIMONY	1	1166

1. Normally Soldered. 2. Soldered under special conditions. 3. Not normally soldered.

COMMON SOLDER ALLOYS

IDENTIFICATION	% COMPOSITION	M.P.	COMMENTS
WOODS METAL	12½-T, 25-L, 50B, 12½-C	165°F	LOW TEMP., NON-ELEC.
EUTECTIC, T-L	63-T, 37-L	361	NO PASTY RANGE
ASTM 60A	60-T, 40-L	370	GOOD ELECTRICAL
ASTM 50A	50-T, 50-L	417	GENERAL PURPOSE
EUTECTIC, T-S	96½-T, 3½-S	430	HIGH TEMP., INSTRUMENTS
INDALLOY-3	90-L, 10-S	448	SOLDERS SILVER, CERAMICS
ASTM 40A	40-T, 60-L	460	GOOD WIPING SOLDER

T - TIN, L - LEAD, B - BISMUTH, I - INDIUM, S - SILVER, C - CADMIUM

TEMPERATURE CONVERSION

°C	°F	°C	°F	°C	°F
-20	-4	60	140	250	482
-10	14	80	176	300	572
0	32	100	212	350	662
10	50	120	248	400	752
20	68	140	284	450	842
30	86	160	320	500	932
40	104	180	356	550	1022
50	122	200	392	600	1112

C=555 (F-32) F=1.8 C+32

STANDARD METAL GAUGES

GAUGE NO.	AMERICAN B. & S.	U. S. STANDARD 2	GAUGE NO.	AMERICAN B. & S.	U. S. STANDARD 2
40	.00315	—	20	.03196	.0375
38	.00397	.00625	18	.04030	.05
36	.005	.00703	16	.05082	.0625
34	.00635	.00859	14	.06408	.07813
32	.00795	.01016	12	.08081	.10938
30	.01003	.0125	10	.1019	.14063
28	.01264	.01563	8	.1285	.17188
26	.01594	.01875	6	.1620	.20313
24	.02010	.025	4	.2043	.23438
22	.02535	.03125	2	.2576	.26563

1 USED FOR ALUMINUM, COPPER BRASS, NON-FERROUS ALLOYS,
2 USED FOR IRON, STEEL, NICKEL, FERROUS ALLOYS.

CONVERSION TABLE

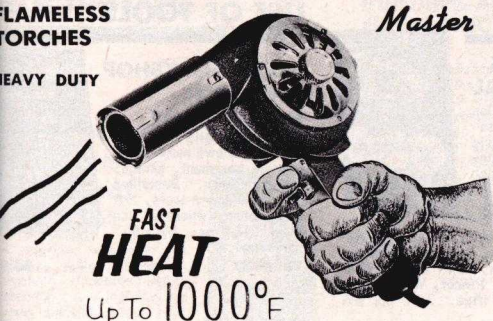
1 INCH	=	2.54 CM.	1 LB.	=	.454 KG.
1 FOOT	=	.305 M.	1 GRAM	=	15.432 GRAINS
1 SQ. INCH	=	6.452 SQ. CM.	1 CARAT	=	3.086 GRAINS
1 CU. INCH	=	16.387 CU. CM.	1 GALLON	=	3.785 LITERS
1 OUNCE	=	31.103 GRAMS	1 H. P.	=	746 WATTS

DRILL SIZES

DRILL SIZE	DIA.	DRILL SIZE	DIA.	DRILL SIZE	DIA.
80	.0135"	58	.042	38	.1015
78	.016	56	.0465	37	.104
76	.02	54	.055	36	.1065
74	.0225	53	.0595	34	.111
72	.025	52	.0635	33	.113
70	.028	50	.070	32	.116
68	.031	48	.076	30	.1285
66	.033	46	.081	29	.136
64	.036	44	.086	28	.140
62	.038	42	.0935	26	.147
60	.040	40	.098	24	.152

HEAT GUNS

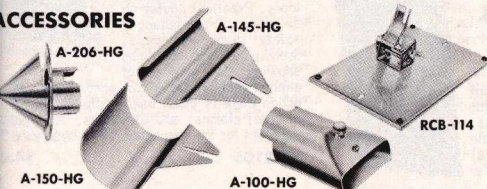
FLAMELESS
TORCHES
HEAVY DUTY



The handiest, quickest, safest way to get the heat you need for a thousand uses in the laboratory or for plant production. The Master Heat gun delivers up to 3000 c.f.m. at temperatures up to 1000° F. without the dangers of open flame! Its many features include an adjustable air intake for controlling the air blast temperature; a double jacketed heater housing; a sturdy die-cast aluminum housing and an 8 ft. neoprene jacketed 3-wire cord and plug that is oil and grease resistant. Turbo type fan blade is efficient and quiet in operation. Master heat guns are widely used in electronic assembly operations for shrinking, leeweeding, for soldering, and for drying cements and potting compounds. SPECIFICATIONS: Overall height, 8". Nozzle air opening, 1½" diameter. Base plate, triangular, 5½" per side. Delivers 35 CFM air volume at 3000 FPM velocity. For 115 volts 50/60 cycles AC, 1/2" DC. Adapter for 2-prong plug included.

Cat. No.	Model	Temperature	Amps	Net Each
10B101	HG-201	200/300°F.	5	\$48.75
10B103	HG-301	300/500°F.	12	48.75
10B106	HG-501	500/700°F.	14	54.85
10B107	HG-751	750/1000°F.	20	65.95

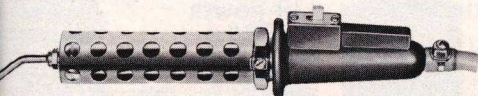
ACCESSORIES



easy-to-use attachments direct the air stream for specialized applications. A heavy-duty chrome base (RCB-114) makes the heat gun free-standing for bench use or production lines. Replacement element kits are also available. Order all accessories from table below. Note: A-100-HG adapter required for A-145-HG and A-150-HG baffles.

Cat. No.	Description	Net Ea.
A-206-HG	¼" Cone for concentrated heat	\$14.25
A-100-HG	Nozzle adapter for baffles below	3.25
A-145-HG	Baffle for tubing up to ¾" o.d.	3.00
A-150-HG	Baffle for tubing up to 1¼" o.d.	3.25
A-203-HG	Extra-wide baffle ¾" o.d.	19.75
RCB-114	Chrome base 6 x 10"	12.60
HAS-017K	Replacement element kit for HG-201	4.95
HAS-018K	Replacement element kit for HG-301	4.95
HAS-011K	Replacement element kit for HG-501	6.95
HAS-015K	Replacement element kit for HG-751	6.95
BSC-104K	Set of replacement brushes, springs, caps	1.68

COMPRESSED AIR HEAT TORCH



Now you can pinpoint intense flameless heat right where you want it. Ideal for shrinking tubing, plastic welding, heating small parts. High temperature—varies from 450°F at 8 lbs. air pressure to 850°F at 2 lbs. air pressure. Nozzle air opening 1¼" dia. Three-wire cord is 5' long. For 115 V. 450 W. With switch and shield.

10B202 \$85.00

NEW!
MTE
HEAT GUNS



A new, compact, lightweight heat gun from MASTER. Weighs only 28 ounces. Outstanding features include interchangeable heating-element nozzles, self-standing body design, safety light, hanging loop, high-impact thermoplastic case. Brushless shaded-pole motor is whisper quiet. Airflow of 700 f.p.m. is less than heavy-duty models at left, but more than adequate for most electronic applications. Comes with 650° nozzle element and slip-on deflector. Nozzles for other temperatures may be ordered from the table below. For 120 V. 60 Hz. Three wire cord and plug. Optional ¼" pin-point adapter available.

10B112 Heat Gun \$38.75
10B061 Pin-point Adapter 2.75

REPLACEMENT ELEMENTS

Cat. No.	Temperature	Wattage	Net Each
20012	500°F.	325	\$4.35
20013	650°F.	475	4.35
20014	800°F.	525	4.35

"PRINCESS" HEAT GUN



An ultra-light heat gun specifically designed for electronic labs and production lines. Heat is isolated at the nozzle area (¾"), and the gun's light weight (17 ounces) allows operators to put the heat exactly where it's needed. Has high temperature of 850° F. and works hot or cold. Trigger actuated switch and pistol-grip handle make it a real pleasure to use. Four ingenious baffle adapters are included at no extra charge. A bench holder is available as an accessory. For 120 V. AC—250 W. Has neoprene 3-wire Hypalon cord—U/L listed.

46B310 Heat Gun \$ 52.50
46B320 Stand \$ 4.00

"THERMO-SHRINK"



This new tool provides a low-cost source of radiant heat for shrinking a wide range of materials up to ¾". The total shrinking job is done in one quick operation with radiant heat. There is no moving air, noise, or vibration! Selector switch gives choice of three heat ranges covering Mylar to Teflon (Du Pont trade names). The portable hand tool weighs only 7 ounces and may be used at the work (46" cord) or mounted on the power unit. For 115 V. 60 Hz.

45B308 \$69.50

JENSEN PAYS THE SHIPPING CHARGES!



BOOKS

METALWORKING

MACHINISTS' LIBRARY IN 3 VOLUMES

This up-to-date set covers the entire machinists' field—basic methods and principles as well as the equipment and tools used in modern metal machining and toolmaking. A valuable reference for machinists, tool and die makers, machine operators and setup men. Contains a summary and review questions at the end of chapter.

181B155 (SET)\$16.50

MACHINISTS' LIBRARY VOL. 1

BASIC MACHINE SHOP

Contents: Blueprint reading, benchwork, measuring tools, threading dies, milling machine cutters, and more. 384 pp. 5½ x 8½" hardbound.

181B119\$5.95



MACHINISTS' LIBRARY VOL. 2

MACHINE SHOP

Contents: Power hack saws, sheet metal hand tools and machines, metal forming machines, drilling machines, lathes, and more. 480 pp. 5½ x 8½" hardbound.

181B121\$5.95



MACHINISTS' LIBRARY VOL. 3

TOOL MAKERS HANDY BOOK

Contents: Layout work, jigs and fixtures, helix and spiral calculations, gears and gear cutting, cams and cam design, dies and die-making. 352 pp. 5½ x 8½" hardbound.

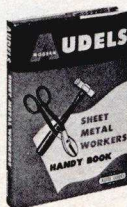
181B123\$5.95



SHEET METAL WORKERS HANDY BOOK

Fundamentals of sheet metal work layout. Offers step-by-step instruction in 50 problems, many of which are actually encountered in laying out of patterns. 416 pp. 4¾ x 6¾" hardbound.

181B125\$5.00

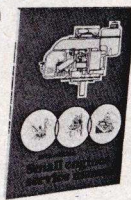


SERVICING

SMALL ENGINES SERVICE MANUAL

Contains all the information needed to service small engines. Covers 461 basic models of air-cooled engines under 15-cubic inch displacement. Explains servicing of solid-state ignition systems, and includes the following models: Briggs & Stratton, Chrysler, Craftsman, Evinrude, Homelite, Honda, Johnson, Kohler, Lawn Boy, McCulloch, Outboard Marine, Pincor, West Bend, and many more. 900 illus. 304 pp. 8½ x 11½" softbound.

181B127\$5.95



HOW TO REPAIR MAJOR APPLIANCES

The complete "A to Z" of major home appliance repairs. Explains universal operating principles, and provides details for troubleshooting and repairing. Covers both electric and gas units. 240 pp. 5½ x 8½" softbound.

181B129\$4.95



FIX YOUR SMALL APPLIANCES VOL. 1

A guide to repairing small electrical appliances with heating elements (skillet, coffee makers, irons, table ovens, toasters, blankets). 150 pp. 5½ x 8½" softbound.

181B131\$3.95



FIX YOUR SMALL APPLIANCES VOL. 2

Companion to Vol. 1. Covers repair of small electrical appliances with motors, such as fans, can openers, sewing machines, vacuum cleaners, shavers, blenders, grinders. 100 pp. 5½ x 8½" softbound.

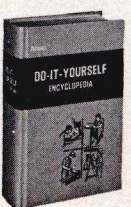
181B133\$3.95



DO-IT-YOURSELF ENCYCLOPEDIA

A large volume containing thousands of how-to-do-it photos and step-by-step plans for home improvement and maintenance projects, including air-conditioning, brick and block work, doors, insulation tile, wallpaper, etc. 1024 pp. 5¾ x 8¾", hardbound.

181B135\$10.50

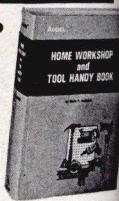


USE OF TOOLS

HOME WORKSHOP AND TOOL HANDY BOOK

Complete details on how to set up your own home workshop in basement, garage, or spare room. Describes hand and power tools, and how, when, where to use them. 464 pp. 5½ x 8½" hardbound.

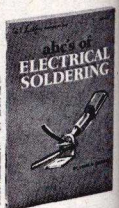
181B137\$5.95



ABC'S OF ELECTRICAL SOLDERING

Tells how to solder and how to make solder repairs. Explains solder alloys, soldering irons, fluxes, heat guns, production soldering, and miscellaneous soldering and connecting methods. 128 pp. 5½ x 8½" softbound.

181B139\$3.25



HOW TO USE HAND AND POWER TOOLS

A complete guide to all modern hand and power tools. Practical advice on selection, maintenance, safety. Over 320 photos, drawings, and diagrams showing the purpose of each tool and what it can accomplish. In addition there is much useful information on use of glue, clamps, and abrasives. Also practical hints for the carpenter. Hardcover, 6 x 9".

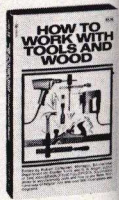
182B105\$4.95



HOW TO WORK WITH TOOLS AND WOOD

Complete book about hand and power tools for handyman, amateur carpenter or experienced home craftsman. Over 500 illus. and diagrams. Tells you how to handle every woodworking job with professional skill—from gluing and finishing to making cabinets and furniture. 488 pp., softbound.

183B210\$1.25



COMPLETE BOOK OF POWER TOOLS

Describes all power tools, stationary and portable, giving its uses, characteristics, adjustments and operation. The first section deals with stationary tools (saws, drill press, etc.). Includes 1500 photographs plus hundreds of line drawings. Hardcover. 8½ x 10½".

182B109\$11.95



ELECTRONICS

HANDBOOK OF ELECTRONIC TABLES AND FORMULAS

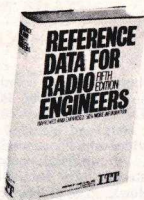
A one-stop source for all charts, tables, formulas, symbols, standards used in electronics. Includes a chart showing latest FCC allocations for the entire frequency spectrum. 5½ x 8½", hardbound.



181B100 \$6.95

REFERENCE DATA FOR RADIO ENGINEERS

This industry standard is a "must" for the electronic engineer. Includes 45 chapters devoted to frequency data (units, constants, conversion factors); properties of materials, components and parts; network fundamentals (filter design and attenuators); rectifiers and filters; magnetic amplifiers; feedback control systems; electron tubes and circuits; semiconductors and transistors; electronic circuits; and much more. Hardbound, 1196 pages, 6½ x 9½".



181B103 \$20.00

101 WAYS TO USE YOUR VOM AND VTVM

Covers equipment checks, and testing for AC and DC voltage, DC current, ohmmeter, signal-tracing, alignment applications and color-tv. 144 pp. 5½ x 8½" softbound.



181B105 \$3.95

101 WAYS TO USE YOUR OSCILLOSCOPE

Explains how to make waveform tests and analyze waveforms produced by defective circuits. Covers detailed testing of various sections of both b/w and color tv sets. 192 pp. 5½ x 8½" softbound.



181B107 \$3.95

BUILDING AND INSTALLING ELECTRONIC INTRUSION ALARMS

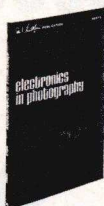
Covers electromechanical intrusion alarms, sensors and switches, closed-circuit TV, proximity alarms, power supplies, telephone attachments, alarms for automobiles. Includes data on construction, installation and maintenance of alarms. 136 pp. 5½ x 8½" softbound.



181B109 \$4.50

ELECTRONICS IN PHOTOGRAPHY

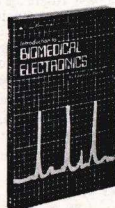
A general introduction to photographic electronics, and chapters on the various forms of light control, timing and timing devices for both still and motion photography. 128 pp. 5½ x 8½", softbound.



181B111 \$3.50

INTRODUCTION TO BIO-MEDICAL ELECTRONICS

One of the few sources of information available for the electronics specialist already working in, or planning to enter the area of bio-medical electronics. 208 pp. 5½ x 8½", softbound.



181B113 \$5.58

SCIENCE & MISC.

METRICS FOR THE MILLIONS

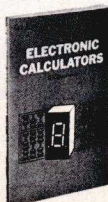
Explains the metric system in comparison with the U.S. systems in terms that everyone will understand. Metric units of length, area, weight, capacity, etc. 90 pp. 5½ x 8½", softbound.



181B117 \$3.50

ELECTRONIC CALCULATORS

The first complete source available for electronic calculator information. Includes calculator memories, displays, design, fabrication, component selection, and servicing. 176 pp. 5½ x 8½", softbound.



181B115 \$5.95

BASIC PLASTICS

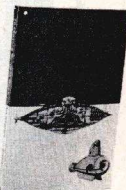
Explains how to work with plastics and the characteristics of each. Also shows tools needed and how to use them. Contains plans for over 50 projects. 112 pp. 5½ x 8½", softbound.



181B141 \$2.60

INVENTORS PROJECT BOOK

Presents design outlines, methods, references, and tentative solutions to problems involved in inventing and creative endeavors. Includes selling of inventions, protection of priorities, copyrights, trademarks, etc. Softbound, 160 pages, 5½ x 8½".



181B143 \$3.95

TECHNICAL WRITER'S & EDITOR'S STYLEBOOK

Explains in text and examples the basics of good writing techniques, the use of symbols, mathematics, technical phraseology, punctuation, capitalization, devices for emphasis, etc. 208 pp. 5½ x 8½", hardbound.



181B145 \$5.50

JEWELRY MAKING

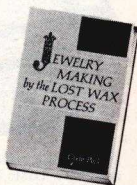
Presents to the beginning as well as experienced craftsman the most practical and advanced methods of creating handmade jewelry. Beautifully printed, 188 illustrations. 131 pages.



218701 \$9.50

JEWELRY MAKING BY THE LOST WAX PROCESS

Explains the recently revived technique of the lost wax process. This process allows the creation of unusual and intricately designed jewelry using modern tools and materials. Hardbound, 112 pages. Many illustrations and diagrams.



218703 \$6.95

NOW YOU CAN CHARGE IT!



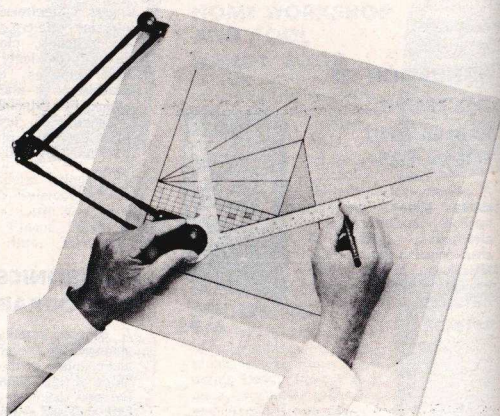
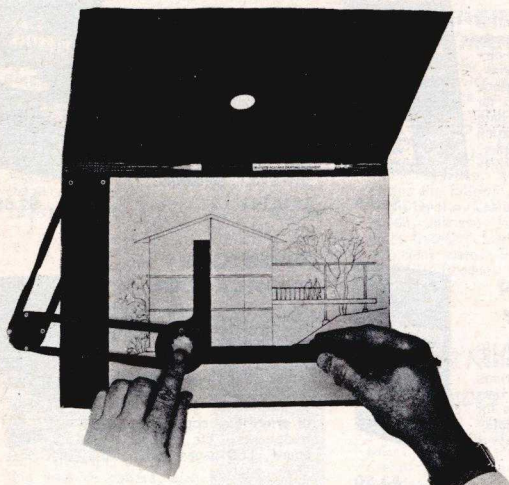
ENGINEERING SUPPLIES

drafting

SKETCH KIT

draftette

DELUXE MODEL **draftette**



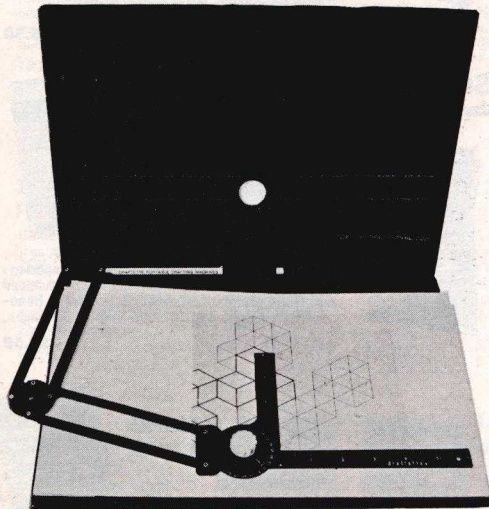
Smallest, and one of the most popular portable drafting instruments. Consists of an all-aluminum drafting machine, drawing board, and one-piece self-contained vinyl binder. The drafting machine itself serves triple duty as a combined T-square, triangle, and 360° protractor. Calibration of the 4 x 6" scale is in 16ths of an inch, with 1/8's and 1/4's. An optional accessory scale calibrated in 10/50ths (engineering) and millimeters is also available (see list of accessories). Complete unit measures 9 1/2 x 13 x 1" and weighs only 1 1/2 lbs. A drawing pencil and 50 sheets of 8 1/2 x 11 paper are included.

70B006 \$ 14.85

This model features a larger drawing board and a larger drafting machine, but the vinyl case is not included (order separately from list of accessories below). The drafting machine is constructed of anodized aluminum with tubular arms and includes a full 360° protractor. A one-piece scale is provided which measures 6 x 9" and is calibrated in 16ths, 1/8's and 1/4's. An optional engineering scale calibrated in 10/50ths and millimeters is also available for this model (order from list of accessories below). The lightweight 1/4" drawing board measures 16 x 21". Furnished fully assembled, ready for use.

70B009 \$ 26.25

DRAFTETTE PROFESSIONAL



DELUXE DRAFTING MACHINE (Less Board)

Buy this drafting machine and attach it to your own drawing board or pad of paper up to 16 x 21". No screws, nuts, or bolts are needed to attach. When not in use, it folds up like a jack-knife for convenient storage. Description same as for Deluxe Model above, but board not included.

70B054 \$ 19.50

DRAFTETTE ACCESSORIES

ENGINEERING SCALE 4 x 6"

For use with 70B006 Sketch Kit and 70B030 Professional Model. Measures 4 x 6" and is calibrated in 10/50ths and millimeters. Easily replaces fractional inch scales furnished with units.

70B046 \$ 4.25

ENGINEERING SCALE 6 x 9"

Same as above, but for use with 70B009 Deluxe Model or 70B054 Deluxe Drafting Machine. Measures 6 x 9" and is calibrated in 10/50ths and millimeters.

70B069 \$ 6.25

VINYL POUCH 16 x 21"

A vinyl plastic carrying case for the 70B009 Deluxe Model. Has a snap top and supply pouch for small drawing instruments, pencils, etc.

70B070 \$ 4.25

Newest BIG brother of the Draftette Sketch Kit, with 27% greater drawing area. Basic features are the same (all aluminum drafting machine with 360° protractor and 4 x 6" scale calibrated in 16ths). The complete unit in vinyl self-contained binder measures 14 1/4 x 10 1/4 x 1" and weighs about 2 lbs. Comes with drawing pencil and pad of 8 1/2 x 14" paper.

70B030 \$ 16.95

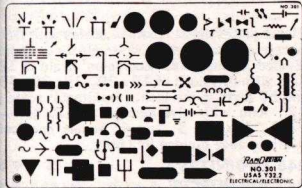
JENSEN TOOLS and ALLOYS

4117 N. 44th Street, Phoenix, Arizona 85018

ELECTRONIC *RAPID*DESIGN[®] TEMPLATES

Used by design engineers, experimenters, draftsmen. Thickness .030". Color green. Includes symbols most often used in electrical and electronic design.

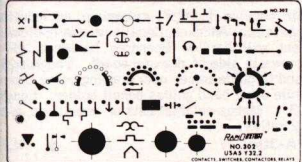
STANDARD ELECTRONIC SYMBOLS



Includes transistors, diodes, tubes, transformers, batteries, switches, connections, etc. 8 x 5".

301-R \$ 5.75

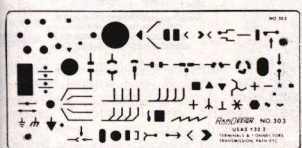
SWITCHES, CONNECTORS, RELAYS



Includes contacts, coils, steppers, selectors, breakers, all switch components. 8 x 4 1/4".

302-R \$ 4.75

TERMINALS, CONNECTIONS, PATHS



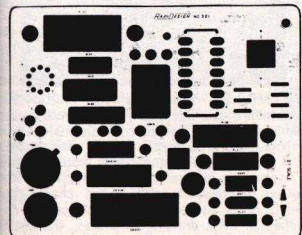
Includes pins, sockets, cables, connections, grounds, flows, paths. 8 x 3 3/4".

303-R \$ 3.75

Set of three templates described above.

300-R \$ 13.25

PC DESIGN



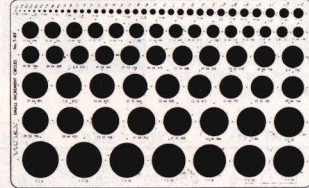
Includes Mil-Std dimensions (2:1) for components most often used in printed circuit design. 5 1/2 x 4 1/4".

321AR \$ 5.00

GEOMETRIC *TIMELY* TEMPLATES

Used by draftsmen, scientists, engineers. All are .02" thickness. Color light green. Die-cut precision templates produced by zero-clearance male and female dies.

CIRCLES

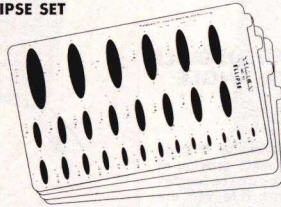


Inch version has 85 circles from 1/2 through 1 1/4". Millimeter version has 50 circles 1 through 50 mm. 6 1/4 x 10".

T-89 INCH CIRCLES \$ 2.75

T-88MM MM CIRCLES 1.65

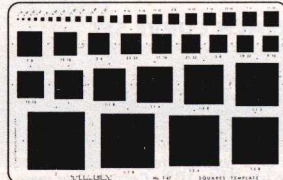
ELLIPSE SET



A set of 4 templates for major axis 3/4 through 2 1/2" in 15°, 30°, 45°, or 60°. Makes 100 ellipses. Each template 6 x 10".

T-92B SET \$ 5.50

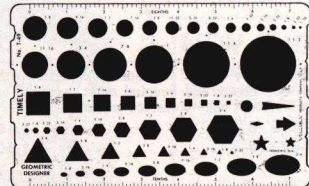
SQUARES



A selection of 40 squares 1/4" through 2". Has pin-point centering holes. 6 1/4 x 9 3/4".

T-47 \$ 2.20

GEOMETRIC DESIGNER



Combines above functions with 65 circles, squares, hexagons, triangles, ellipses, scales, etc. in one 4 1/4 x 8" template.

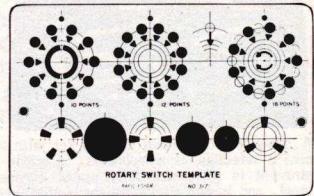
T-49 \$ 1.65

QUANTITY PRICES

In lots of 10 (may be assorted), deduct 10% from template prices shown on this page. In lots of 100, deduct 20%.

MECHANICAL AND MISC. TEMPLATES

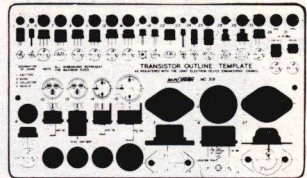
ROTARY SWITCH TEMPLATE



Covers 10, 12, and 18 point rotary switches, but can be used in other combinations. 6 1/2 x 3 1/2".

317-R \$ 3.25

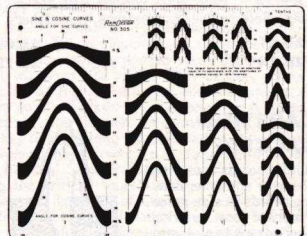
TRANSISTOR OUTLINES



Includes 27 sizes of transistors with designating numbers. JEDEC standards. 9 1/2 x 5 1/4".

319-R \$ 3.75

SINE-COSINE CURVES



Sets of nested Sine and Cosine curves with wavelengths from 1/2" to 3". Many amplitudes. 10 1/2 x 8".

305-R \$ 4.50

MISC. TEMPLATES

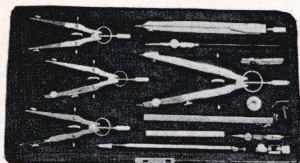
We can also furnish the many templates listed below (not illustrated). All except 60D are made by RapiDesign.

Cat. No.	Description	Each
128R	Combined electrosymbols	\$2.75
312R	Electric controls	3.00
51R	Triangles and diamonds	3.00
54R	Computer diagrams	3.00
541R	Logic symbols	3.25
34R	Welding symbols	1.75
960R	Gothic lettering	3.00
60D	Greek lettering	2.60
610R	Office plan layout	2.25
15R	Screw threads	3.00
85R	Nuts, bolts, screws	3.75
47R	Instrument symbols	3.75
41R	Heating/air conditioning	3.75

NOW YOU CAN CHARGE IT!



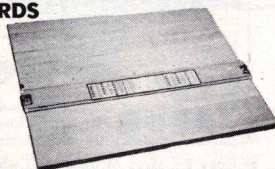
PROFESSIONAL DRAWING SET



A superior professional drawing set with a choice selection of components. Each instrument is made of heavily plated chrome steel, and is beautifully finished. Set includes 6" combination bow, pen, pencil, and divider for circles up to 28". Also includes 6" hairspring divider, bow pencil, bow pen, bow divider, ruling pen, lead holder, handle, center tack, spare parts and extra lead tube. In velvet-lined, two-button case.

918 \$ 49.50

STRAIGHT-EDGE DRAWING BOARDS

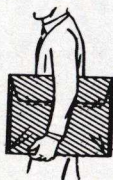


Eliminates the need for a T-square. Accurate parallel rule (with transparent acrylic edge) moves up and down across board, always in contact with board and always in perfect alignment. Board is select basswood, with reinforced hardwood cleats to prevent warpage. Rubber feet prevent scratching of desk. PEB-21 is 16 x 21". PEB-24 is 18 x 24". Both sizes popular with technicians, field engineers, students, researchers.

PEB-21 \$ 18.00
PEB-24 22.75

CARRYING JACKETS

Holds boards described above or any other drawing boards in size range. Plenty of room for triangles, drawing instruments, pens, pencils, etc. Jacket is heavy waterproof plastic with 2-button snap flap. Rolls up into small space when not in use.



BJ-16 (for 16 x 21" boards) \$ 3.15
BJ-18 (for 18 x 24" boards) 3.50

"POLYGRAPH" PEN SET



The modern way to draw lines to micro standards. Set includes 4 points for line widths 0.2 to 0.5 mm. (#00 to #2), 4 caps, barrel holder, single-jointed bow compass adapter, wrench nib key, 4 extra ink cartridges, in transparent plastic case.

3054-T \$ 22.75

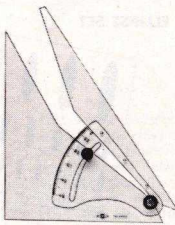
TRIANGLES

Professional acrylic Plexiglass will not darken, decompose, or warp. Each triangle is double checked for accuracy. Meets U.S. government specifications. Green tint reflects a soft light to minimize eyestrain. Beveled edges for inking and other close work.



CAT. NO.	STYLE	SIZE	EACH
B131G-4	45°/90°	4"	\$1.35
B131G-6	45°/90°	6"	1.60
B131G-8	45°/90°	8"	2.35
B130G-4	30°/60°	4"	1.30
B130G-6	30°/60°	6"	1.35
B130G-8	30°/60°	8"	1.70
B130G-10	30°/60°	10"	2.55

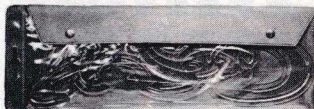
ADJUSTABLE TRIANGLE



Protractor triangle permits drawing of accurate angles from 0 to 90° direct from the base line. May be set to graduations of 1/2°. Made from clear optical Plexiglass. The 6" model has a 7" hypotenuse. The 10" model has a 13" hypotenuse.

106-C (6") \$ 5.85
110-C (10") 10.00

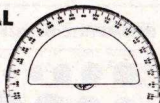
FRENCH CURVE SET



Set of 3 popular irregular curves. Range in size from 6" to 10". Crystal-clear green tinted plastic. .090" thick. Vinyl plastic case.

FC-3 \$ 2.10

PROFESSIONAL PROTRACTOR



Extra-heavy .090" transparent plastic with cut-out center and beveled outer edge. For professional use—accurate graduations.

P-476 (6") \$ 1.10
P-477 (8") 1.60

"CURVEX"



Made of a square section lead bar encased in a smooth gray plastic body. Designed with raised lip edge for ink ruling. Unlimited curves may be obtained with minimum radius of 1". Holds to any shape. Length 16".

1022-16 \$ 2.95

TRIANGULAR BOXWOOD SCALES

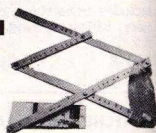


Finest professional boxwood scales with faces completely embodied in white plastic. Engine divided graduations. Engineers' scale is 12" long with divisions of 10, 20, 25, 30, 40, and 50 parts to the inch. Architects' scale is 12" long with divisions of 1/4, 1/4, 3/4, 1/2, 3/4, 1, 1 1/2, 2, 3, and 4" equals one foot, with one edge divided in 16ths.

245 ENGINEERS' \$ 9.85

242 ARCHITECTS' 9.85

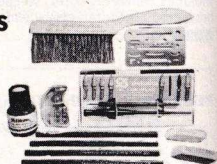
PANTOGRAPH



For copying to size, enlarging, or reducing drawings. An exceptionally accurate instrument with bars of Beemtrees hardwood. Peg screws to side of drawing board. One hand is used to guide tracer over drawing being copied while other hand guides pencil holder. Length 13". Makes enlargements or reductions up to 12 ratios.

PA-304 \$ 4.15

SUPPLIES KIT

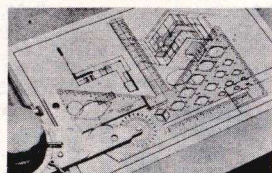


20 ITEMS!

A JENSEN kit of expendable drawing supplies to get you started at once without having to order many items separately. Includes 4 drawing pencils, pencil pointer, 2 erasers, erasing shield, dust brush, penholder, 3 drawing pens, 6 Speedball pens, and bottle of Pelican drawing ink. In paper carton.

238779 KIT \$ 6.55

ISOMETRIC DRAFTING AID



The MILLER Y-angle plastic drafting aid combines in one device all the separate pieces required to make isometric (3-dimensional) or orthographic drawings. Has 7 scaled edges at 4 preset angles, plus 360° protractor and 17 isometric ellipse cutouts. Eliminates lost motion of constant rotation and change between rules, triangles and protractors. Attaches to most drafting machines, the Draftette 70B009, or can be used freely against T-square. Heavy 0.1" plastic. Inch and metric models offered.

121B780 (INCH MODEL) \$15.00

121B790 (METRIC MODEL) 16.00

NOVUS

PERSONAL
CALCULATORS

from
NATIONAL SEMICONDUCTOR

High-quality personal calculators at an easily affordable price. National Semiconductor is a world leader in providing the "guts" that go inside spacecraft, color TV, and calculators. Because they make all important parts of NOVUS calculators, you get a better product at lower cost.

6-DIGIT—\$24.95

It is to be a wonder working essential tool—not an executive toy. This basic 6-digit model adds, subtracts, multiplies and divides. Calculations appear instantly on a bright, easy-to-read LED 6-digit display. Weighs only 5 ounces and measures 2 1/4 x 5 x 3/4" (shirt-pocket size). Operates from inexpensive 9 volt transistor battery (not included) or 184B910 adapter below.

184B600 \$24.95



8-DIGIT—\$29.95

Another shirt-pocket size basic personal calculator, similar to above, but with 9-digit display (calculates to \$9,999,999.99). Features same as 184B600 above except for 9-digit model also has a "battery saver" that turns off all but one digit 20 seconds after the last calculation. By continuing calculations, the entire display instantly turns on. Dimensions same as 6-digit model.

184B900 \$29.95



8-DIGIT—\$39.95

FLOATING DECIMAL
CONSTANT
DISPLAY BLANKING

Many extra features are offered in this "most for the money" model. Bright 8-digit display reads to \$999,999.99. Full-floating decimal system. Constant lets you multiply or divide by the same number. Battery saver feature blanks all but one digit after 25 seconds. Operates from 9 volt transistor battery (not included) or AC adapter below. Shirt-pocket size.

184B820 \$39.95



AC ADAPTERS FOR ABOVE

Operate any of the three models above on 115 volts AC by plugging adapter into wall socket and connecting adapter cord to calculator.

184B910 \$5.95

8-DIGIT—\$59.95

- ✓ FLOATING DECIMAL
- ✓ AUTOMATIC CONSTANT
- ✓ MEMORY STORAGE
- ✓ PERCENT KEY
- ✓ RECHARGEABLE BATTERIES AND CHARGER/ADAPTER INCLUDED



Our finest NOVUS personal calculator with all those extra "get the job done" features, and with a price so low that it lets you think of this outstanding calculator as a necessity, not a luxury. It adds, subtracts, multiplies and divides. Calculations appear instantly on a bright, 8-digit display. An automatic constant allows you to multiply and divide by the same number over and over without ever re-entering that number. A percent key greatly simplifies figuring discounts, mark-ups, commissions and other percentage calculations. And the time-saving memory storage lets you tuck away a number while you do other calculations, then recall it whenever you wish. This deluxe, shirt-pocket size model features rechargeable batteries and AC charger/adapter (included at no extra cost). To conserve battery life, it shuts off all but one digit 25 seconds after the last calculation. By simply touching the display return key or continuing the calculation, the entire display reappears. This high-quality personal calculator sells at an affordable price because of National Semiconductor technology. NS is a world leader in providing the critical "guts" that go inside spacecraft, color tv's, calculators and hundreds of other products that rely on sophisticated solid-state electronics. Because they make all the important parts of NOVUS calculators themselves, you get a better product at less cost.

184B823 \$59.95

NEW ENGINEERING CALCULATOR

It was JENSEN's original intention to offer on this page an "engineering calculator" for our many technically oriented customers. In searching for one suitable, however, we found ourselves in the midst of a technological revolution that could outdate the selection before our catalogs were printed. Finding this unacceptable, we chose instead to make the following offer to our customers.

If you are interested in purchasing an engineering calculator, write today to Jensen Tools and Alloys and ask to be placed on our special calculator mailing list. Then, later this year when the new calculator is made available by the manufacturer, we will mail you descriptive literature and ordering information. The new calculator will offer the same (or better) features as the most popular calculator on the market today. You will be assured of quality and a competitive price by the fine reputation of the manufacturer, one of the nation's leaders in calculator technology.

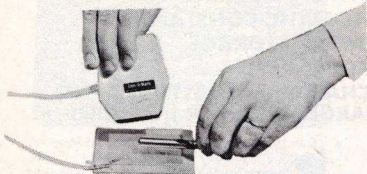
ASK FOR BULLETIN C-74 WRITE TODAY!

JENSEN PAYS THE SHIPPING CHARGES!



MISC. EQUIPMENT

YOU CAN MARK MOST ANYTHING



with Etch-O-Matic

The famous Etch-O-Matic system permanently marks tools, parts, and equipment by electronic etching technique. It takes only seconds to put your number, name, trademark, or signature on any metal surface—including the hardest tool steels or carbides. Marks are typed, written, drawn, or die impressed on special stencils and may cover an area up to 7/8 x 1-3/4". Black, white, or clear marks may be made. Complete kit includes the marker (for 115 V AC), ground plate, stencils, general-purpose electrolyte solution, and full instructions. Kit includes supplies to mark up to 2000 tools!



ETCH-O-MATIC KIT

58B100 - \$24.95

FOR DEEP ETCH MARKING USE AN ADAPTER CLIP



Clip simply "snaps on" to regular ground wire and converts AC to deep-etching DC. Will deep etch .001" and more on most metals. Also used for marking aluminum and black oxide surfaces, and for deep marking of chrome labels.

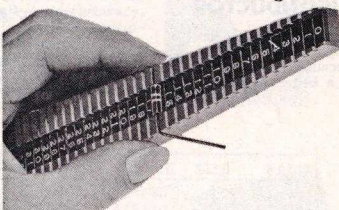
INCLUDED FREE WITH KIT

OTHER ETCH-O-MATIC ACCESSORIES

Cat. No.	Description	Price
58B112	Stencils - pkg. 50	\$2.95
58B112	Stencils - pkg. 100	3.95
58B114	Pad refill kit	1.50
58B115	Stainless grid plate	2.25
58B116	Ground plate	2.00
58B118	Plastic end cap	1.00
58B120	Chrome labels - pkg. 25	3.25
58B120	Chrome labels - pkg. 50	5.95
58B120	Chrome labels - pkg. 100	9.95
58B120	Electrolyte - 4 oz. bottles:	
58B130	General purpose	2.25
58B140	Stainless steel	2.25
58B150	Copper and bronze	2.25
58B160	Aluminum	2.25
58B170	Black oxide	2.25

NOTE: 58B120 labels above are made of solid brass, heavily chrome plated, with an adhesive backing for application to machinery or equipment.

COMPONENT LEAD-BENDING GUIDES



Fast, accurate lead forming with complete reliability—no nicks or sharp bends! Up to 1200 component leads may be formed per hour—at the bench. Offered in four sizes, with 40 lead-forming positions on each. 51KL is used for 1/4 watt resistors, diodes, and disc capacitors. 51KM is used for 1/2 watt resistors and other components of similar size. 51KP is for 1-watt resistors. 51KQ is used for 2-watt resistors and has a special feature to accommodate DO-1 "Tophat" diodes. 51KS is a set of all four gauges. Made of light-weight, high-impact Cycloc plastic.

Cat. No.	Description	Price Each
51KL	1/4 watt, .375 - 1.5"	\$ 5.40
51KM	1/2 watt, .050 - 1.5"	5.40
51KP	1-watt, .75 - 2.5"	6.75
51KQ	2-watt, .875 - 2.5"	6.75
51KS	Set of four gauges above	21.75

ADJUSTABLE BENDING BLOCK



Leads of common components (resistors, capacitors, inductors, chokes) can be bent to within 0.1" of component body on centers up to 3". Easily adjusts for component body lengths up to 1 1/4". Get neat, rounded lead bends every time with this most useful, low cost bending block. Aluminum alloy. Weighs only 10 oz.

710 \$16.95

"SPEEDY-BEND"



One simple tool serves for both 1/4 and 1/2 watt resistors, as well as diodes. High-impact cycloc plastic. Graduated in .05" increments on 0.4 to 1.5" centers. Radius edges. Overall length 5 1/2".

PD-801 \$2.95

(In lots of 10, \$1.95 ea.)

WATCHMAKERS BENCH



Specialty designed for precision workers (opticians, instrument makers, fine mechanics). Working area is at eye level—38" off floor. Has 19 drawers of assorted sizes, plus a catch-all tool tray with canvas covering. Top surface is hardwood 20 x 39". Has reinforced foot rest. Beautifully finished in natural wood on all three sides. Shipped prepaid from factory in Missouri.

218420 \$195.00

"QUICK-PICK" TOOLS



A set of seven tiny tools to remove transistors and capacitors from crowded circuits. The tools clamp over the transistor or other part and act as a heat sink. Both hands are left free for soldering, desoldering, or testing. Color coded. Non-magnetic. Accommodate 25 different outlines of transistors or can capacitors. Furnished in plastic case.

9216 \$ 6.95

SAFETY-WIRE TWISTER



Used to grip, twist, and cut safety wire on ordnance, aircraft and electronic components, machinery and controls. Jaws are tapered for easy access. Handles safety wire up to .06" diameter. Just grip wire and lock handles, pull knob to twist wires, squeeze to release.

MB-111 \$19.95

LEAD-FORMING TOOL



Used to bend extended leads flat on the circuit pads without nicking or marring. Also may be used to form component leads before placement on circuit board. One end formed like a pencil point for radius bending of leads. The other end is screwdriver shaped for pressing leads after inserting and trimming. Made of nylon.

51FN \$1.60

(In lots of 10, \$1.35 ea.)

COMPLETE ELECTROPLATING OUTFIT



PLATES RHODIUM, GOLD, SILVER, COPPER, OR NICKEL. ALSO CAN BE USED FOR CLEANING AND STRIPPING. INCLUDES BEAKERS, LEADS AND CLAMPS, SOLUTIONS, CLEANERS, ANODES, AND HANDBOOK.

Used by jewelers, research laboratories, and in small production lines. The VIGOR plater is a precision-built electronic unit made with heavy-duty components able to stand high overloads. Continuous duty maximum output is 20 amperes, with voltage continuously adjustable from 0 to 15. The cabinet is made of heavy black vinyl plastic and is resistant to rust, moisture, acid, and stain. The complete outfit includes the basic electroplater, 3 Pyrex beakers, 1 set of leads and alligator clips, 1 quart gold plating solution, 1 pint rhodium plating solution, 1 quart copper plating solution, 1 quart cleaner, 1 gold anode, 1 stainless steel anode, 1 platinumized titanium anode, and—most important—a detailed book of instructions, "Plating Precious Metals". The entire system is shipped prepaid to any U.S. destination. An order form for additional supplies and solutions is included with each kit.

21B345 \$249.00

DEMAGNETIZER



A simple, well-built demagnetizer. Use it to instantaneously and completely demagnetize small tools such as tweezers, screwdrivers, taps, drills, reamers, scissors, scales. Also used for demagnetizing watch and instrument movements and ferrous parts.

KO-202 \$12.95

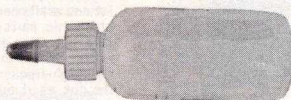
"LAB-VAC" VACUUM CLEANER



A compact vacuum cleaner to keep everything "clean room" clean. Clean inside chassis, instruments, racks, optical apparatus, etc. Has a 5" tapered accessory nozzle to reach into corners and tight spots. A brush is also included for cleaning flat surfaces and table tops. For 115 V. AC.

MODEL TVM \$36.50

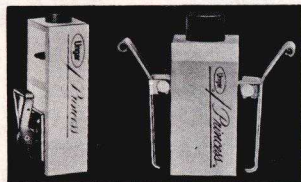
4 oz. POLY BOTTLES



Here's a simple item, hard to find when you badly need it. Polyethylene bottles, finest quality, in convenient 4 oz. size. Comes with two caps—regular cap for permanent storage, and pointed dispensing cap with tiny end cover. Use for dispensing solvents, fluxes, cements, etc. Sold in lots of three bottles.

PLX-4 (Pkg. 3) \$1.25

IC EXTRACTORS



Two extremely useful extractors for removal of integrated circuits from printed boards. Spring-loaded action assures safe removal and helps prevent damaged pads and components. May be used with "Princess" desoldering kit shown on page 87. 6982 is for 14 and 16-pin dual in-line IC's. 6983 is for TO-5 packages.

6982 (Dual in-line) \$3.08

6983 (TO-5) 3.54

TORCHLAMP



Provides safe, flameless 800° heat in just seconds. Used for soldering and sweating, shrinking tubing, removing paint, softening tiles and plastics, photographic floodlighting at 2400-K. Secret of its action is a 600 watt 75-hour quartz-bromide lamp with a high purity aluminum reflector. Dark glasses supplied with each lamp.

TL-2 TORCHLAMP AND GLASSES \$28.50

592 REPLACEMENT LAMP 13.90

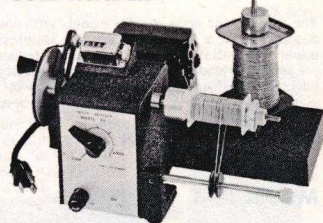
VACONNECTOR T.M. KIT



Make electrical connections to wires without stripping and without cutting the wire being connected to or "tapped". Rated at 300 volts and UL listed. This kit includes a generous supply of connectors for wire sizes from AWG 12 through 18, plus assorted wire samples and slip-joint pliers with long handles. The kit is furnished in a sturdy metal box with instructions and safety precautions imprinted in the lid.

36B499 \$30.00

COIL WINDER



For all laboratory and prototype coil winding applications. Ideal for ferrite pot cores, bobbins and solenoids $\frac{1}{8}$ " to $1\frac{1}{4}$ " i.d., square or cylindrical, up to 3' long. Motor drive has built-in electronic speed control 35 to 850 RPM, with a "stop" position. Wire feed and tension are controlled by hand. The unit is extremely compact ($12 \times 8 \times 7$ " and weighs only 8 lbs. Foot rheostat and Jacobs #0 chuck available as accessories.

174B121 WINDER \$265.00

174B174 FOOT RHEOSTAT 12.95

174B175 JACOBS CHUCK 22.50

POW'RIVET



The VACO POW'RIVETER features a special 3-way head that accepts $\frac{1}{8}$ ", $\frac{3}{16}$ ", and $\frac{1}{4}$ " rivets by the removal of a simple thumb screw. No other adjustments necessary. Complete kit includes riveter (with cushion handle grips), generous supply of assorted-size rivets (more than 600), and a deluxe metal box. An essential item for maintenance and the home shop.

36B335 \$27.50

NOW YOU CAN CHARGE IT!



MISC. EQUIPMENT

ULTRASONIC CLEANERS FROM ELECTROMATION

Professional ultrasonic cleaners for use on electronic production lines, in white rooms, medical, dental, and optical laboratories. Removes grease, tar, wax, sulphides, fluxes, fingerprints and dirt in inaccessible areas from small components, miniature mechanisms and parts, drafting pens and instruments—anything that fits inside the cleaning cup. Five models (all transistorized) operate at 80,000 cycles per second to provide smaller and more penetrating cavitation bubbles. Use with any normal solvent (water, ammonia, detergent solution, alcohol, Freon, Tri-Chlor, proprietary cleaners—whatever you would use to clean the item without ultrasonics). Unconditional 90-day warranty on all models in commercial use. One-year warranty for personal use.

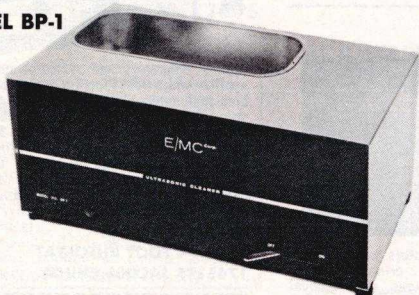
MODEL LP-1-HD



The original and most popular model, with one-pint stainless steel tank measuring $3\frac{1}{2} \times 3\frac{1}{2} \times 2\frac{1}{2}$ " deep. Stainless cover included. Input power 40 watts average. Automatic frequency-controlled generators are transistorized and operate at approximately 80 KHz. High-temperature crystal allows operation of liquid up to 200° F. Overall dimensions $5 \times 9\frac{1}{2} \times 4\frac{1}{2}$ ". Furnished with 3-wire cord. For 105-125 volts 50-60 Hz.

8B101 (MODEL LP-1-HD) \$79.95

MODEL BP-1



One-quart model features a stainless steel tank $8 \times 3\frac{1}{2} \times 2\frac{1}{2}$ " deep. Stainless cover included. Input power 80 watts average. Two independent automatic frequency-controlled generators, fully transistorized, drive independent crystals for maximum cleaning efficiency and reliability. Other features same as model above. With 3-wire cord. For 105-125 volts 50-60 Hz.

8B102 (MODEL BP-1) \$99.95

MODEL 450



A new, extremely compact one-quart model. Stainless tank measures $8 \times 3\frac{1}{2} \times 2\frac{1}{2}$ " deep. Stainless lid included. This is an 80-watt all transistorized unit with technical features similar to model BP-1 described above. Overall dimensions $7 \times 8\frac{1}{2} \times 3\frac{3}{4}$ ". With 3-wire cord. For 105-125 volts 50-60 Hz. This new model is very popular due to its lower price and small size.

8B105 (MODEL 450) \$82.50

MODEL 250

A low-priced, small-sized version of the LP-1-HD. Has one pint stainless steel tank measuring $3\frac{1}{2} \times 3\frac{1}{2} \times 2\frac{1}{2}$ " deep. Stainless lid included. This is a 40-watt all transistorized unit with technical features similar to model LP-1-HD described at left. With 3-wire cord. For 105-125 volts 50-60 Hz. This is the smallest "regular" model—ideal for home use to clean small parts, coins, dentures, pens, etc.



8B104 (MODEL 250) \$54.95

MODEL 77

This low priced "miniature" model brings ultrasonic cleaning within everyone's reach. Stainless steel round cup is $2\frac{1}{4}$ " diameter by $1\frac{1}{2}$ " deep. Ideal for cleaning jewelry, contact lenses, coins, artist and draftsmen's capillary pens, small electronic parts, etc. Fully transistorized operation at 80 KHz. Rated at 12 watts. You can't hear it operating, but the high-frequency action drives away the dirt as if by magic. For 105-125 volts 50-60 Hz.

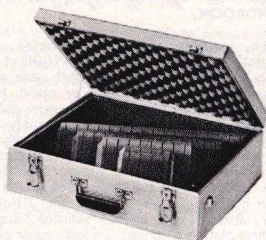


8B103 (MODEL 77) \$32.95

ADAPT-A-CASE®

Do-it-yourself partitioning accommodates fragile instruments, circuit boards, cameras, etc. Thickly padded partitions interlock (in 1" increments) to provide custom-made compartments, insulated against heat and dust. Offered in six styles—four aluminum and two plastic.

ALUMINUM CASES



For those who want a rigid, rugged case. Sleek, rivetless construction of aluminum, with continuous hinge. Maximum security draw-locks. Rubber gasket in tongue-and-groove closure for maximum dust and moisture protection. Four sizes. 101B103 and 101B111 have three dividers. 101B105 has seven dividers. 101B108 has five dividers. Extra dividers available on special order.

101B102 (22 x 16 x 10) \$96.00
101B105 (22 x 16 x 5) 89.00
101B108 (18 x 14 x 5) 76.00
101B111 (12 x 12 x 5) 59.00

ABS TOUGH PLASTIC CASES

Popular cases made of black ABS plastic. Tongue-and-groove aluminum closure, three strong hinges, and positive action locks. Originally designed for 35 mm. cameras, but useful for holding anything of similar size. 101B203 has four dividers. 101B207 has three dividers.

101B203 (16 x 11 x 5) \$34.00
101B207 (12 x 8 x 5) 23.00



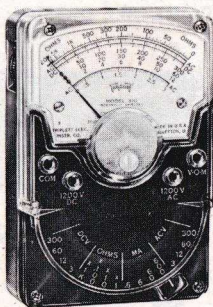
TEST EQUIPMENT

miniature meters

TRIPLETT

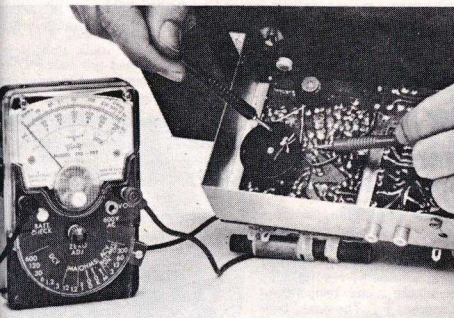
MODEL 310 MINIATURE V.O.M.

extremely compact V.O.M. with 10,000 ohms per volt DC sensitivity; 5,000 AC. Rugged construction—self shielded for use in strong magnetic fields. Measures 0-3-12-60-300-1,200 volts AC DC; 0-20,000-200,000-2 megohms—20 megohms; 0-0.6-50-600 milliamperes DC. Accuracy $\pm 3\%$ DC; $\pm 4\%$ AC. Measures only 2-3/4 x 4-1/4 x 5/16". Leather case available.



B200 V.O.M. \$50.00
B202 CASE 5.10

MODEL 310-FET SOLID STATE V.O.M. WITH 10 MEGOHMS INPUT RESISTANCE



Now you can have the advantages of a vacuum-tube voltmeter in a miniature battery-powered tester. Solid-state F.E.T. front end provides 10 megohms input resistance on DC measurements. Measures 0-0.3-1.2-6-30-120-600 volts DC at 10 megohms; 0-3-12-60-300-600 volts AC at 5000 ohms per volt; 0-500K-50 megohms-5000 megohms. The low DC scale 0-3, the capability of resistance measurements to 5000 megohms, and the unusually high input resistance make this V.O.M. an order of magnitude more useful than other compact testers.

B230 F.E.T. V.O.M. \$82.00

TRIPLETT

COMPLETE CLAMP-ON AMMETER SET



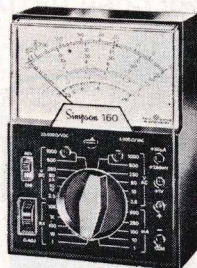
This five-piece set measures AC amperes 0-6-12-30-120-300 without breaking the circuit. An adapter is included which instantly provides 2-conductor cords for measuring loads of all plug-in equipment. Set includes 310 V.O.M. tester (described above), clamp-ammeter adapter, line separator adapter, set of separating leads, and a leather case.

B240 AMMETER SET \$86.00

Simpson 160 Handi-VOM®

**SENSITIVITY: 20,000 OHMS/VOLT
DC — 5,000 OHMS/VOLT AC.
ACCURACY: $\pm 2\%$ DC — $\pm 3\%$ AC.**

Now you can have most all the features of your favorite VOM, but in a compact package. The Simpson 160 weighs only 12 ounces and measures just 4 1/4 x 3 1/4 x 1 1/4"—small enough to fit in any tool box or attache' case. Accuracy and sensitivity same as the famous model 260. The self-shielding Taut Band movement features outstanding repeatability and freedom from stray magnetic fields. The movement is varistor protected against overloads. The 160 measures 0-.25, 0-1, 0-2.5, 0-10, 0-50, 0-250, 0-500, and 0-1000 V DC; 0-2.5, 0-1, 0-50, 0-250, 0-500, 0-1000 V AC; 0-50 uA; 0-1, 0-10, 0-100, and 0-500 MA; 0-30 megohms in five ranges (R x 1, R x 10, R x 100, R x 1K, and R x 10K). A DB scale (1 mW into 600 ohms) is also included. Furnished complete with alligator-clip leads, battery, and operator's manual. Case available (see below).



50B317 VOM \$64.00
50B325 CASE 12.60

MODEL 355 MIDGETESTER

So very small (2 3/4 x 4 1/2 x 1") it easily slips into your shirt pocket. No wonder the 355 Midgetester is so popular with all who must make basic voltage and resistance measurements "in the field". Features self-shielding movement and 10,000 ohms per volt sensitivity on both AC and DC ranges. Measures 0-3, 0-12, 0-60, 0-300, and 0-1200 V AC or DC. Has four resistance ranges (R x 1, R x 10, R x 100, and R x 1K). Accuracy $\pm 3\%$ DC and $\pm 5\%$ AC. Furnished complete with test leads and manual. Case available. This is the smallest VOM tester we have ever seen. Note: The 355 is an optional component in the JTK-16 tool kit (P. 61).



50B417 TESTER \$55.00
50B425 CASE 6.75

IMPORTED VOM'S

ANIRA NH-65

Although low priced, these instruments meet professional standards. Outstanding features include mirror scale, overload protection, 1% wire-wound resistors throughout. Measures 0-.25-1-10-50-250-500-1000 volts DC (20,000 ohms per volt), 0-10-50-250-500 volts AC (8,000 ohms per volt), 0-50 uA-10mA-250mA, and ohms in three ranges. Double-wedge shape fits the hand. (4 1/2 x 3 3/4 x 1 1/2").



NH-65 TESTER \$23.50
NH-2P ZIPPER POUCH 1.35

SPERRY SP-140

All-purpose pocket-sized tester with double-jeweled meter. Measures 0-2.5-10-50-250-1000 volts DC (20,000 ohms per volt), 0-10-50-250-500-1000 volts AC (10,000 ohms per volt), 0-50mA-25mA-250mA, and ohms in two ranges. 1% stabilized resistors provide DC accuracy $\pm 3\%$. Size 3 1/4 x 4 1/4 x 1 1/4".



SP-140 \$23.50

JENSEN PAYS THE SHIPPING CHARGES!



TEST EQUIPMENT

FAMOUS 260® VOLT-OHM-MILLIAMETER

Simpson



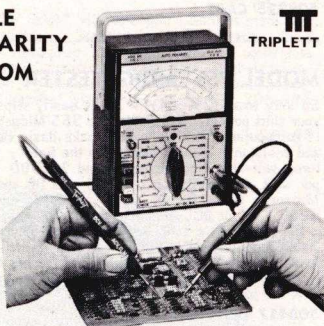
Famous for rugged dependability and advanced features. The Simpson 50-microampere movement is self-shielding and shockproof. Varistor protects the movement against overloads. Mirror scale and knife-edge pointer provide maximum accuracy. Sensitivity 20,000 ohms per volt DC—5000 ohms per volt AC. DC accuracy $\pm 2\%$, AC accuracy $\pm 3\%$. Measures 0-.25, 0-1 volts DC, 0-2.5, 0-5, 0-10, 0-50, 0-250, 0-500, 0-1000 volts AC and DC; 0-50 μ A, 0-1, 0-10, 0-100, 0-500 MA; 0-10 A, 0-20 megohms on three resistance scales. Also has DB and output ranges. "Transit" switch position damps meter movement for shipping and handling. Has new external battery and fuse access. Model 260-6M (mirror scale model) furnished with operator's manual, test leads, and batteries.

50B217 VOM \$ 77.50
50B225 CASE 19.35

THE INCREDIBLE 603 AUTO-POLARITY SOLID STATE VOM

TRIPLITT

Probably the most convenient VOM ever made. Auto-polarity feature allows meter to read up-scale, regardless of input polarity. FET input resistance exceeds 10 megohms on all ranges (AC-DC). Simplified scale has only 2 arcs. On both AC and DC the lowest voltage scale is 0 to 0.3. Accuracy $\pm 3\%$ on all ranges except 0-1000 V, and current measurements, where it is $\pm 4\%$. Measures 0-1000 V in 8 ranges (AC or DC), 0.2 ohms to 1000 megohms in 6 ranges, and 0-1000 MA in 4 ranges. Low-power ohms feature allows in-circuit measurement without damage to components. Battery life over one year with unit left on 24 hours per day. An outstanding portable instrument that does most of the jobs formerly requiring a vacuum-tube voltmeter.



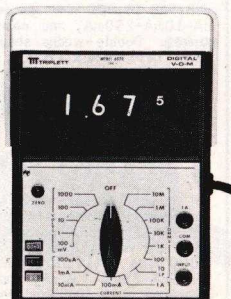
Measures 0-1000 V in 8 ranges (AC or DC), 0.2 ohms to 1000 megohms in 6 ranges, and 0-1000 MA in 4 ranges. Low-power ohms feature allows in-circuit measurement without damage to components. Battery life over one year with unit left on 24 hours per day. An outstanding portable instrument that does most of the jobs formerly requiring a vacuum-tube voltmeter.

56B250 V.O.M. \$173.00
56B272 LEATHER CASE 18.70

TRIPLITT DIGITAL V.O.M.

Here it is—a small, lightweight, portable DIGITAL volt-ohm-milliammeter. Unique Triplitt 2 1/2 digit design provides accuracy to 500 microvolts. Input resistance 10 megohms on all scales. Has 100% overrange, out of range indication, and reverse polarity indication. Measures AC and DC voltage from 0 to 1000 volts in five scales, AC and DC current from 0 to 1 ampere in five scales, and ohms in seven ranges from 10 to 10 megohms full scale. Lowest full scale voltage range both AC and DC is 100 millivolts. Low circuit loading and inherently high accuracy and resolution make this instrument ideal for communications maintenance, circuit design engineers, quality control, and production lines.

56B270 V.O.M. \$275.00
56B272 Leather Case \$ 18.70



MODEL 460® PORTABLE DIGITAL V.O.M.

Simpson



This portable digital V.O.M. operates up to eight hours on its self-contained rechargeable batteries. Batteries charge automatically when unit is plugged into AC line. Display is non-blinking, 3 1/2 digits, with instant readout. There are 26 switch-selected ranges plus a unique analog readout to approximate the test area and check battery. Measures 0-1000 volts AC and DC in five ranges with lowest full scale 200 millivolts; 0-1 ampere AC and DC in five ranges with lowest full scale 200 microamperes; 0-20 megohms in five ranges. DC accuracy $\pm 0.1\%$ of reading ± 1 digit. Comes complete with instruction manual, ready to operate.

50B428 \$395.00

TRIPLITT

MAINTENANCE ANALYZER KIT

For the electrician, maintenance engineer, service technician—a complete analyzer kit measuring volts, amperes, ohms, decibels, revolutions-per-minute, and temperature in degrees F. The basic tester is a special version of the famous Triplitt 630 VOM, with all of the measurement capabilities of that fine instrument. Supplementary test devices included in the kit are an AC-ammeter adapter (300 A.), an AC line separator, a tachometer generator (0-5000 r.p.m.), a temperature probe, (50 to 300° F.), and a DC shunt (0-100 A.). The entire assortment of measuring devices is furnished in a foam-lined attache' carrying case. This kit highly recommended for plant maintenance.

56B274 \$ 255.00



"STROBETTE" TACHOMETER



Easy-to-use stroboscope-tachometer. For quality control, motion analysis, design engineering, measurement of motor and gear speeds over 200 r.p.m. Measures 200 to 6000 r.p.m. at 3% accuracy. Flash duration 10 to 25 microseconds. Flash color Xenon-white. Solid-state circuitry. Has tripod socket and on-off switch. Weighs only 27 ounces. Ready to plug into 115 volts AC and operate.

964 \$ 99.00

CONNECTION VERIFIER



capacitance-sensing device that indicates whether wires are connected. Touch connector pin with probe. Audible indicator will tell operator whether wire is present or absent (broken or spare). Particularly valuable with open connectors. Greatly reduces cabling work. Measures 4 x 1 1/2 x 3". Operates on 9 volt dry cell (not included).

5B090 \$ 34.50

HAND SCAN



unique wire-locating device. Provides complete freedom of both hands to find a single wire in a group of thousands. One side of low-voltage circuit is attached to operator's wrist. When the correct wire is touched, operator hears a soothing, variable audio tone. Eliminates wire tagging and marking. Eliminates need for color-coded wires. Ultra-high sensitivity (100 megohms) makes device useful for isolation testing. Measures 3 1/2 x 4 1/2 x 5". Operates from one 9 volt and 2-1.5 volt "C" dry cells (not included).

HS-1 \$ 79.00

HANDY- PULSE



generates a single negative pulse of one microsecond duration for each depression of the momentary switch. A unique design allows the operator to use the probe in a wide range of digital families (TTL/DTL/RTL/ECL/MOS). Will not double trigger and does not require an internal or external power source. Can be used for flip-flop counting, setting and resetting, command override. Will not harm circuit tested. Has over-voltage protection circuit. Pocket size 2 1/2 x 4 x 3/4".

HP-G-2 \$ 19.95

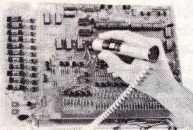
MINI- BEEPER



An industrial resistance-sensing and semiconductor tester. Operator can detect resistance changes as small as 2-3 ohms through a distinct change in frequency of the audible tone. Ideal for point-to-point and continuity testing. Also tests in-circuit junctions of transistors and diodes to indicate leaking, shorted, or open conditions. Measures 4 x 2 1/2 x 1 1/2". Operates from a single 1.5 volt "C" cell (not included). Complete with leads.

MB-1 \$ 13.95

DIGITAL LOGIC TESTER



No visual observations. High tone from device indicates logic "1". Low tone indicates logic "0". Tone patterns are quickly memorized, making this a fast and efficient electronic tester compatible with DTL and TTL circuitry. A feather-weight retractable cord connects +5 volts DC to equipment being tested. Input impedance 150K ohms. Length 6 inches.

138B095 \$21.95

"IN CIRCUIT" TRANSISTOR TESTER



No need to unsolder the transistor or diode. Just press tester pins against the printed-circuit connections. This will place the transistor into actual operation. If a tone is heard, the transistor is functioning. If no tone is heard, it is open or shorted. Maximum voltage applied to base-emitter junction of transistor is 0.8. Switch selects NPN or PNP devices. Will not harm circuits. Battery easily replaced. Comes complete with extender cable. Diode testing adapter is optional.

138B085 \$19.95

138B086 \$3.95

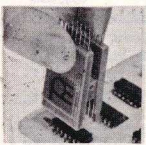
STEP FREQUENCY GENERATOR



An audio sine and square wave generator providing six fixed frequencies (100, 400, 1000 Hz; 3, 10, 15 KHz.) at 1% accuracy. Delivers 4 volts P/P maximum sine wave into 600 ohms with constant output at all frequency settings. Distortion under 0.5%. Delivers 2 volts P/P maximum square wave with 250 ns rise-fall time. Output is DC coupled and short-circuit proof. Operates on two 9-volt transistor batteries (included).

138B120 \$26.95

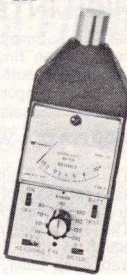
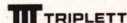
POMONA DIP CLIP



This new laboratory accessory allows attachment of oscilloscope and VTVM test probes to 14- or 16-lead DIP's for hands-free testing. Reduces the possibility of shorting out live circuits or damaging the delicate components. Gold-plated contacts. A "must" for designers and trouble shooters.

136B792 \$5.25

SOUND LEVEL METER



Lets you see sound by measuring the ambient level from 40 to 140 dB. Has weighting networks to meet ANSI and OSHA standards, plus "slow-fast" switch. Built-in ceramic microphone. Comes complete with batteries for 40 hours of operation, plus an instruction manual.

56B967 \$275.00

"THERMY" TEMPERATURE-MEASURING PROBE



A new test instrument that provides instant temperature readings electronically. Use it to test motors, transformers, electronic components, fluids—anything that can be reached by the probe. Temperature range -60 to 400° F. (-50 to 200° C.). Use Thermo with any quality VTVM or VOM tester. Simple scale on the Thermo converts meter reading to temperature.

123B778 \$17.95

GROUNDING OUTLET TESTER



Check grounded outlets for safety in seconds. Three indicator lights indicate safe circuits, reversed polarity, open ground or neutral, and no-power circuits. (Does not test reversed neutral ground).

177B200 \$7.95

SNAP-AROUND METER

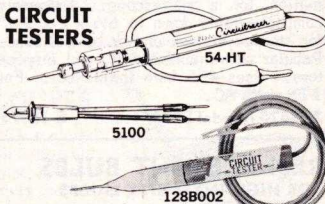


Compact snap-around ammeter measures 0-10/50 A. 60 Hz. Also measures 0-150/600 V. Optional linecord adapter multiplies sensitivity by 10 for testing appliances in use.

180B050 AMMETER \$46.50

180B010 ADAPTER 6.95

CIRCUIT TESTERS



Handy pocket testers. 54-HT checks continuity, low-voltage live circuits, and high-voltage live circuits. 128B002 is a self-powered continuity tester for dead circuits. 5100 checks live circuits 90 to 550 volts.

54-HT \$ 6.95

128B002 2.75

510095

NOW YOU CAN CHARGE IT!



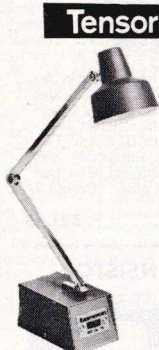
LIGHTING-OPTICAL

HIGH-INTENSITY LAMPS

These tiny lamps provide the whitest, most glare-free illumination you can find indoors. Their secret is the use of rugged, low-voltage bulbs (a transformer is in the base of each lamp). All models operate on 115 volts AC. U/L approved.

1500 FOLD-A-WAY LAMP

The famous Tensor high-intensity lamp used for assembly, inspection, graphic arts, photography, and hobby use. The light output from this model is equal to that of a conventional 150 watt desk lamp, yet it folds down to a convenient 2 x 2-1/2 x 9" for storage in tool box or brief case. All metal construction—will stand the most rugged use in workshop or lab. Uses #93 bulb (included). Has Hi-Lo switch to extend life of bulb when maximum light output is not required. For operation on 115 V. AC. Finish is walnut and brass. Ready to plug in and operate.



27B210 (Model 1500) \$16.00

WIDE-ANGLE LAMP

Designed to evenly illuminate wide areas. Equal to 200 watt desk lamp. Folds to 4 x 4-1/4 x 11-1/2". Arm extends 15 inches for maximum versatility of use. Has Hi-Lo intensity switch. Uses #1133 bulb (furnished). Made by Tensor. Lifetime guarantee.



27B260 (model 6500-W) \$19.95

MAGNIFIER LAMPS

Versatile linkage system combines high-intensity lamp and precision-ground 2-power magnifier. Lamp output 500 ft.-candles. Uses 1133 bulb. Grey finish. Model 7175 has 2-1/2" dia. lens. Model 7176 has 4-1/2" dia. lens. All metal construction.



27B400 (Model 7175) \$37.95

27B410 (Model 7176) 41.95

5979 SUB-MINIATURE LAMP

Claimed to be the world's smallest lamp. Furnishes 80 ft.-candles at 6" and up to 2000 ft.-candles when used as illumination for a microscope. Extremely compact—folds down to 6 1/2 x 2 x 3 1/2" for storage in desk drawer or tool case. Popular with fine mechanics and inspectors. Uses #55 bulb (furnished). For 115 volts AC.



27B420 (Model 5979) \$ 18.95

REPLACEMENT BULBS FOR HIGH-INTENSITY LAMPS

General Electric low-voltage bulbs for miniature lamps. Available singly or by the carton.

Cat. No.	Type	Price Each	Carton of 10
26B641	1133	\$.99	\$8.90
26B650	93	.57	5.10
26B722	55	.29	2.53
26B725	40S11	.88	7.90

ILLUMINATED MAGNIFIER

The famous LUXO magnifier lamp. Spring-balanced arms have 45" total reach. They move at a touch, but then stay put. Precision-ground lens is 3-diopter, 5" dia. Accessory lens available to increase magnification (see below). Lamp is 22 W. (type T-9) circular fluorescent (included with the magnifier) providing bright, uniform, and shadowless illumination directly on the work being inspected through the lens. Lamp comes complete with clamp-type mounting bracket for attachment to level surface, edge of table or desk. For 115 V. AC. U/L-approved. Three-wire cord. Dove grey finish.



28B200 (Model LFM-1A) \$ 54.50

Auxiliary 8-diopter lens snaps onto bottom of magnifier to increase overall power to 11-diopter. Plano-convex optics. 3-1/8" dia.

28B210 (Auxiliary lens) \$ 13.50

Circular fluorescent lamp for model LFM-1A.

T-9 LAMP \$4.95

LUXO LIL-E

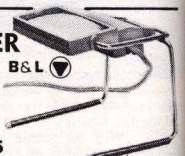
A new, petite-size version of the famous LUXO swinging lamp used in offices and factories throughout the world. Extends out to 24". Glides into any position and holds it. Uses specially frosted high-intensity lamp—no transformers—equal to 80 W. ordinary illumination. Has a circular heavy base. No clamps or brackets needed. Complete with bulb, ready to operate. All metal construction. For 115 V—ready to plug in. Uses 40S11 lamp.



28B340 \$26.50

ILLUMINATED MAGNIFIER

A compact, inexpensive magnifier for inspection, counting, and small-part assembly. Lens measures 2 x 4" and has great depth of field. For 115 V.



CAT. NO. 11B120 \$11.25

DESK LAMP FL-1A

An industry favorite. The LUXO FL1-A fluorescent desk lamp is used by engineers, draftsmen, artists, executives. Total arm reach 45". Comes with clamp-type bracket and 2 T-8 15 watt bulbs.



28B300 \$52.50

INDUSTRIAL FLASHLIGHTS



Rugged Burgess flashlights. No. 563 penlight has positive-action on-off switch. No. 263 high-impact industrial flashlight has magnet grip. No. 453 safety model is U/L and Bureau of Mines approved. Batteries not included.

29B170 (Model 563) \$1.49

29B100 (Model 263) 2.71

29B150 (Model 453) 5.25

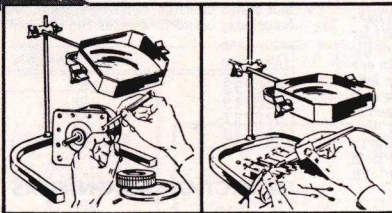


NEW

**Distortion-free
"STEREOPTIC"
MAGNIFIER**

from EDROY

Bring your work into sharp focus. Assure continuous, fatigue-free production or inspection; eliminate tension and eye-strain. This new, distortion-free "Stereoptic" magnifier features a precision-ground lens that needs no focusing and maintains complete depth of field. Although designed primarily for miniature and sub-miniature work, the magnifier's 15" height provides space for larger work, tools and hands. The work and viewing area can be instantly changed by raising or lowering the bars. The 48 sq. inch lens (6 x 8") has a magnification of 2.5 X. Available with and without fluorescent-light illumination.



MAGNIFIER WITHOUT LAMP

52B713 ----- \$79.95

MAGNIFIER WITH FLUORESCENT LAMP

52B717 ----- \$97.50

EDROY MARK II MAGNIFOCUSER

with
exclusive
**SINGLE
LENS**



.no center post

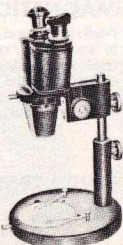
"Flip-Up" design means no time or work lost in switching from regular vision to magnification. The comfort-designed headband (lined with a cushion of polyfoam) adjusts continuously to the wearer's headsize. Ruggedly constructed of high-impact plastic—nothing to corrode, stick or wear out. Weighs only 4-1/2 oz. Model 52B727 has auxiliary flip-down lens which increases magnification (in one eye) to 5-1/4 power.

Cat. No.	Focal Distance	Power	Aux. Lens?	Each
52B720	14"	1-3/4	No	\$14.95
52B724	8"	2-1/4	No	14.95
52B727	6"	2-3/4	Yes (*)	19.95

*Provides 5-1/4 power at 2" working distance (one eye).

STEREOSCOPIC MICROSCOPE

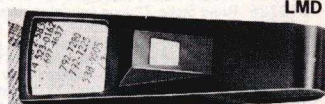
Fowler



Gives 3-dimensional image of great clarity. Well suited for machine work, assembly of small parts, and printed circuit manufacture. Image is erect (unreversed). Stage has glass insert. Furnished with four pairs of achromatic objective lenses to provide magnification from 12½ X to 85X. Packed in fitted wooden case.

102B450 ----- \$295.00

MAGNA-LITE



The best pocket magnifier we've ever seen. Has powerful optical quality lens. Use it to examine small parts, read fine print, or as a flashlight. Only 4¾" long—fits pocket, purse, desk, or toolbox. Comes with two size AAA batteries.

62B790 ----- \$4.00 (In lots of 12, \$3.25 each)

BAUSCH & LOMB

WATCHMAKER'S LOUPES

SINGLE- AND DOUBLE-LENS

MODELS

*Double-lens models



Cat. No.	Working Distance	Magnification	Each
11B102	1"	10X	\$3.45
11B104	1.5"	7X	2.85
11B106	2"	5X	2.30
11B108	2.5"	4X	2.25
11B110	3.5"	3X	2.25
11B112	5"	2X	2.25
11B114 (*)	.5, 1.25"	8, 18X	6.25
11B116 (*)	1.5, 2.5"	4, 7X	4.00

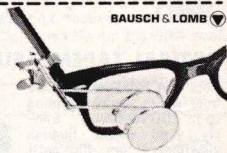
SPECTACLE LOUPE HOLDER —handy device holds any of the loupes above to eyeglasses. **11B125 \$.55**

HEAD SPRING —attaches to any loupe above so that it can be worn at all times. **21B313 \$ 5.90**

EYEGLASS LOUPES

BAUSCH & LOMB

These models attach to eyeglass temples. Flip easily out of the way when not in use. Gold finish. Models marked with (*) are double-lens types.



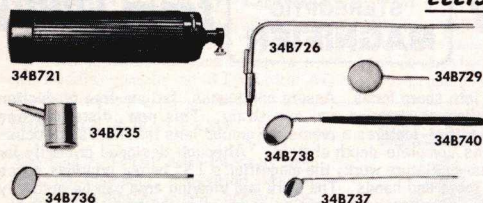
Cat. No.	Working Distance	Magnification	Each
11B130	3.3"	3X	\$4.75
11B133	2"	5X	4.80
11B135 (*)	2.5, 1.5"	4, 7X	7.35
11B137 (*)	3.3, 2"	3, 5X	7.35

JENSEN PAYS THE SHIPPING CHARGES !



LIGHTING-OPTICAL

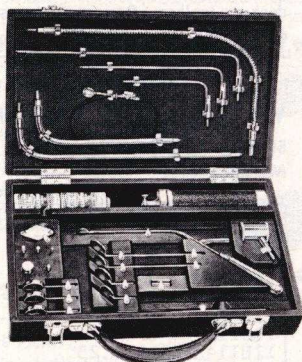
INSPECTION TOOLS



For close examination of equipment not normally accessible to the naked eye. The basic tool is the battery handle, with built in reostat for adjusting lamp voltage. A 7" rigid light probe plugs into the top of the battery handle. The probe is only 1/4" diameter and is fitted at its extreme end with a 1/4" miniature lamp. A long-focus magnifying lens plugs into the light probe near operator's eye. The lens focuses at a point just beyond the end of the miniature lamp. Thus, the inspector may view almost inaccessible spots through tiny apertures. The illuminated magnifier is an optional plug-in viewing aid. Special-purpose mirrors enable operator to see around corners and to magnify the field of view. Order parts separately from table or purchase "Major" kit described below.

Cat. No.	Description	Each
348721	Battery handle (uses two "D" cells—not included)	\$17.50
348726	Rigid probe 7" long (miniature lamp not included)	12.95
348700	Miniature lamp for above, 1/4"	3.85
348729	Magnifying lens for attachment to probe, 7" focus	4.15
348735	Illuminated magnifier for use with battery handle	21.50
348740	Handle for screw-on mirrors below	1.95
348736	Mirror, plane, 5" stem, 1" diameter	1.95
348737	Mirror, plane, 5" stem, 3/4" diameter	1.95
348738	Mirror, magnifying, 1" stem, 1" diameter	1.85

ELLIS "MAJOR" INSPECTION KIT



for examination of

- WAVEGUIDES
- CAVITIES
- PUMPS
- DIES
- VALVES
- MOTORS

An outstanding kit of inspection tools having as principal components the nine items described above. In addition, however, the kit includes four additional rigid probes from 4 to 12", a flexible probe with lamp, two additional magnifying lenses with 4 and 12" focus, an adjustable mirror attachment, magnetic probe adapter, folding achromatic magnifier, three additional mirrors, lens caps, and other parts—all housed in a handsome wooden carrying case with leather handle.

348672 \$185.00

OPTICAL TAPE MEASURE

Lets you measure distance from where you're standing up to 100 feet away. Simply sight object through viewfinder, turn dial until dual images merge into one, and read distance in feet and/or inches. Measures 6 to 100 feet with accuracy of over 99% up to 25 feet and 97% up to 100 feet. Deluxe carrying case.



100G \$22.50

ELLIS

CLIP-ON BINOCULAR MAGNIFIER



EDROY

Swings easily in any direction, leaving both hands free for work. One size fits all eyeglasses. Lenses are optically correct and offered in four styles to match different kinds of work. Lightweight (only 2 oz.) for all-day comfort. Lenses flip up when not in use.

Cat. No.	Working Distance	Power	Each
52B733	14"	1 1/4"	\$12.50
52B715	8"	2 1/4"	12.50
52B737	6"	2 3/4"	12.50
52B710	4"	3 1/4"	15.00

INSPECTION MAGNIFIERS



GENERAL®

Two models. 549-4 consists of a 4" diameter ground and polished magnifier lens mounted at the end of a 12" flexible gooseneck arm. Ball-joint swivel permits easy positioning. Sturdy cast-iron base for table or workbench use. 567-2 is a compact 2" diameter magnifier attached to a cast horseshoe base. Ball-joint adjustment allows positioning to match the work.

549-4 \$ 13.40
567-2 4.80

MAGNIFYING GLASSES



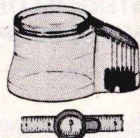
Popularly known and used as reading glasses. For magnifying or enlarging small type or objects in the office, home, factory, or laboratory. Lenses are optically ground and polished. Handles are tapered ribbed plastic. Pocket model has 4X lens and folds into its own case.

540 (2" dia.) \$ 3.05
543 (3 1/2" dia.) 5.50
545 (4 1/4" dia.) 7.60
81-23-44 (Pocket magnifier) 3.35

MAGNETIC SCALE MAGNIFIER

Powerful magnet clamps this magnifier directly to steel rules, vernier calipers, height gauges. Lens is 1" diameter 4X to provide user with highly magnified graduation lines.

550 \$ 1.65



LINEN TESTER

Flat folding pocket magnifier with 5X ground lens and 1" square base marked in 1/4" graduations. For counting, measuring, general magnification purposes.

565-LT \$ 3.95



THEY SAVE MONEY !

WHEREVER SMALL PARTS
OR DIMENSIONS ARE MEASURED

FINESCALE
COMPARATORS AND RETICLES

The FINESCALE is a precision, magnifying-type comparator of extreme accuracy. It performs many of the functions formerly accomplished by instruments costing 10 times the price, or more. Reticles are photographically reproduced from large, accurate master drawings, and provide a working accuracy in the order of .001". No additional light source is required. Each of the 24 reticles is furnished in black-line and white-line pairs. Finescale comparators are used for measuring fine etched circuitry, cathode-ray tube spots, microcircuit chips, gages, templates, punches, dies, machine-tool wear, hole sizes, metal thickness, etc. Without reticles, the Finescale comparator may be used as a high-power magnifier. The basic pocket-model comparator includes magnifier, one pair of #121 reticles, and a pocket carrying case. The desk-model comparator includes magnifier, reticle pairs #121 - #122 - #123 - #124, and a compact carrying case. See list of other reticle pairs at left.

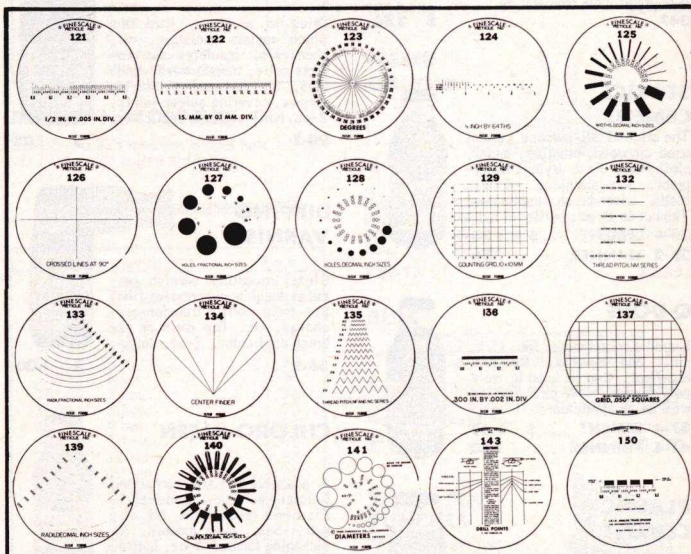


25B250
POCKET MODEL
COMPARATOR
WITH MAGNIFIER,
ONE PAIR RETICLES,
No. 121, AND POCKET
CARRYING CASE
\$16.50

25B300
DESK MODEL
COMPARATOR
WITH MAGNIFIER AND
FOUR PAIRS OF RETICLES,
Nos. 121, 122, 123, 124,
IN COMPACT CASE
\$19.50

ADDITIONAL RETICLE PAIRS

Cat. No.	Description
121	1/2 inch by .005" divisions
122	15 mm. by .1 mm. divisions
123	360° protractor, 1° divisions
124	1/2 inch by 1/64" divisions
125	Widths, decimal inch sizes
126	Crossed lines, 90°
127	Holes, 1/128" to 1/8" dia.
128	Holes, .001" to .05" dia.
129	Counting grid, 10 x 10 mm.
133	Thread pitch, NM series
133	Radial, 1/32" to 3/8"
133	Center finder
135	Thread pitch, NF-NC series
136	3/10 inch by .002" divisions
137	Grid, .05" x .05" squares
139	Radial, decimal inch sizes
140	Caliper, decimal inch sizes
141	Circles, inch sizes from .005"
143	Drill points
150	Analog track spacing



Illustrations for reference only. Much detail is lost in printing process.

Reticle Pairs (specify) **\$2.00**



FLASH-O-LENS



Portable, illuminated magnifiers for close inspection of small parts, drawings, films. Fine optics. Magnification 5X. Choice of 115 V. or battery model (two D-cells not included).
51B453 PLUG-IN MODEL \$15.45
51B437 BATTERY MODEL 14.95

SIGHT-O-LIGHT



Puts bright beam of light along your line of sight for viewing into pipes, sockets, gun barrels, auto parts, nose, throat, ears, etc. Comes with snap-in 2X and 5X magnifiers. Requires 2 D-cells (not included).

170B333 \$7.95

MICRO-MIKE

DUMAURIER



Amazing pocket microscopes require no skill to use. No adjustments—nothing to get out of order. Used by engineers, toolmakers, inspectors, students. Six models cover most every application. Measuring scales accurate to 1% with scale divisions as shown.

Cat. No.	Power	Field	Scale	Each
94B356	10X	.265"	None	\$3.95
94B357	10X	.265"	.005"	5.95
94B352	20X	.190"	None	3.95
94B354	20X	.190"	.002"	5.95
94B353	40X	.082"	None	4.95
94B355	40X	.082"	.001"	8.95

NOW YOU CAN CHARGE IT!



CHEMICALS

electronic

Cements, thinners, varnishes, cleaners, and other chemicals selected for use by electronic technicians and engineers. Unless otherwise shown, all items manufactured by GC Electronics.



EPOXY CEMENT



Won't shrink or expand. Resists acids, grease, water. High electrical resistance. Remarkably strong—specified by NASA in space program. Two 2-oz. tubes. Cures in 4 hours at room temperature.

347 \$ 3.64

SERVICE CEMENT

The original all-purpose cement used on wood, plastics, metal, cloth, etc. Fast drying, water-proof, non-shrinking. 4-oz. bottle with brush applicator. Thinner in 2-oz. bottle.

30-4 CEMENT ... \$ 1.30
28-2 THINNER86



Q-DOPE

Liquid polystyrene for r. f. coils and circuits. Moisture repellent. Can be used to weld polystyrene. 4-oz. bottles with brush applicator.

37-4 CEMENT ... \$ 1.30
41-4 THINNER ... 1.30



PLASTIC CEMENT

Quick drying. Works on all kinds of plastics. Best bond is to thermoplastics such as acetates and butyrates. 2-oz. bottle. Use 28-2 thinner above.

32-2A \$ 1.00



CEMENT KIT



Buy them all to be sure. Kit includes 14 bottles (2 oz.) of cement for every application. Includes service cement, universal cement, acrylic cement, plastic cement. Also has cements for Vinylite, Bakelite, cloth, wood, rubber, neoprene. Also special cements for labels, resistors, vinyl, and electrical use.

345 \$ 13.65

CHEMICAL HANDBOOK

Lists specifications and applications for 80 different GC chemicals and service aids.

IR-7036-G \$ 1.50

LIQUID TAPE

A high-voltage compound that hardens to a strong pliable finish that does not crack or peel. Simply brush on and dry. Use on antenna systems, armatures, tools, circuitry. 2-oz. bottle.

176-2 \$ 1.58



RED GLYPT VARNISH

Dries to a glossy hard film which resists moisture, oil, chemicals. Insulates and protects coils, transformers, windings. Use for sealing, staking screws, covering solder joints. 2-oz. bottle. Brush applicator.

90-2 \$ 1.05



DIPPING VARNISH

Clear insulating varnish protects tough non-corrosive film. For field coils, transformers, chokes, etc. Dip parts or use brush applicator. 2-oz. bottle.

56-2 \$ 1.00



CHLORO-KLEEN

A powerful solvent containing Chlorothene (Dow trademark). Dissolves grease, dirt, tar, oil, wax. Safe, even indoors. No sickening fumes. 4-oz. bottle.

213-4 \$ 1.26



CONTACT CLEANER

Quick drying, fast acting solvent cleaner for switches, volume controls, and all types of electrical contacts. Leaves a deposit which will protect and lubricate contacts after solvents have evaporated. 4-oz. bottle.

210-4 \$ 1.52



COLOR-CODE KIT



Complete set of brilliant fast-drying lacquers. All 10 E.I.A. colors included—black, brown, red, orange, yellow, green, blue, purple, grey, white. Color-code your own equipment. Brushes included.

677 KIT \$ 5.22
29-2 THINNER86

CHEM-LAB KIT

A set of 20 bottles of chemicals (2-oz.) for all kinds of electronic repair. Includes cements and glues, flux, solvents, strippers, dopes, cleaners, varnishes, stains, liquid tapes, scratch remover, lubricants, etc. In steel hang-up rack for lab or shop.

997 \$ 23.50



PC REPAIR KIT



Five chemicals most often needed in p.c. repair work. Includes small bottle of Chloro-Kleen general purpose cleaner, Print-Kote protective silicone resin, Print-Kote solvent, Silver-Print conductive circuit lacquer, and #1544 resin soldering flux.

608109 \$ 19.95

WD-40

Lubricates, penetrates, displaces moisture, prevents rust and corrosion. Silicone-free—leaves no messy or gummy residue. Use to stop squeaks, free rust-frozen parts, dry out wet electrical circuits, protect guns, fishing reels, tools, etc. from rust. Non-conductive. Aerosol cans in three sizes.

WD-40-3 oz. \$.99

WD-40-12 oz. 1.75

WD-40-16 oz. 2.10



ARMOR ALL

Renews, waterproofs, revitalizes, and protects rubber, vinyl, plastic and leather. Can extend the life of these materials many times. Stops damage caused by oxygen, ozone, smog, sunlight. Recommended for Jensen tool cases. In 8-oz. plastic dispenser bottle.

179B118 \$2.98



ARON ALPHA ADHESIVE

A super high-strength, rapid-bonding industrial adhesive. Only one component required. Bonds in less than one minute. Solvent-free. Solidifies through polymerization. Bonds any combination of plastic, rubber, ceramic, glass, or metal. Sold in 2-gram and 20-gram bottles. Refrigerated storage suggested.

CE-475 2-GRAM \$ 1.80

CE-485 20-GRAM 5.95



METRIC TOOLS

There should be little doubt in anyone's mind that the trend to convert to metric measure is now firmly established in the U.S. Industrial commitments are daily increasing the need for metric tools and will continue to do so for many years. In keeping with this trend, we are including in this catalog (for the first time) a page of our most popular metric wrenches, drivers, measuring tools and sets. As with all Jensen tools, these items are in stock for immediate shipment. **GO METRIC NOW!!**

METRIC ATTACHE TOOL KIT



A special version of our standard JTK-17 tool kit. See page 57 for complete details.

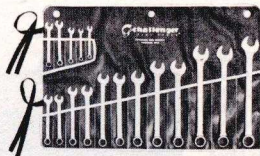
WRENCHES OPEN-END SET



A 10-piece set of open end wrenches in millimeter sizes from 6 to 26. Bodies are hot forged from the finest alloy steel. Chrome plated. In heavy-duty vinyl roll-up pouch.

5710-M\$26.25

COMBINATION SET



A deluxe set of 17 combination wrenches from 6 to 22 mm. Made with same fine quality forgings and chrome finish as the open-end set above. Vinyl roll pouch. An excellent buy!

6101-M\$45.95

MIDGET IGNITION SET

Extremely popular in instrument and electronic work. Offset of 15° on one end and 75° on the other allows easy access to those hard to reach nuts. Ten wrenches cover the range of 4 to 14 mm. Chrome plated. Vinyl roll pouch.

46-10M\$16.75

SOCKET SET

A 1/4"-drive socket set with 10 metric sockets from 4 to 11 mm. Ratchet handle, extension, sliding-T handle, plastic spinner handle and metal box included. Sockets are chrome-vanadium steel.

35B470\$21.50

DRIVERS



Individual fixed-handle hex drivers and nut-drivers. Shafts of finest high-carbon steel. Shockproof plastic (UL) handles.

METRIC HEX DRIVERS



Blades 4" long.

Cat. No.	Hex Size	Each
3B500	1.27 mm.	\$1.36
3B502	1.5 mm.	1.36
3B504	2 mm.	1.36
3B506	2.5 mm.	1.48
3B508	3 mm.	1.48
3B510	4 mm.	1.48
3B512	5 mm.	1.48
3B514	6 mm.	1.48
3B526	Set of 8 drivers above in roll pouch	14.00

METRIC NUTDRIVERS

Sizes 3 and 3.5 mm. are pocket type. Sizes 12-17 mm. are hollow shaft type.



Cat. No.	Hex Size	Each
3B530	3 mm.	\$ 1.36
3B532	3.5 mm.	1.36
3B534	4 mm.	1.36
3B536	4.5 mm.	1.36
3B538	5 mm.	1.36
3B540	5.5 mm.	1.36
3B542	6 mm.	1.36
3B544	7 mm.	1.36
3B546	8 mm.	1.36
3B548	9 mm.	1.36
3B550	10 mm.	1.68
3B552	11 mm.	1.68
3B554	12 mm.	1.96
3B556	13 mm.	1.96
3B558	14 mm.	1.96
3B560	15 mm.	2.40
3B562	16 mm.	2.40
3B564	17 mm.	2.40
3B600	Set of 18 drivers above in cardboard carton	30.00

XCELITE

99-SERIES POCKET SETS



Interchangeable blades provide the ultimate in versatility and compactness (see p. 63). Nut-driver set includes sizes 4-11 mm. Hex driver sets include sizes 1.27-5 mm. All sets come in see-through plastic case and include 4" extension and plastic handle.

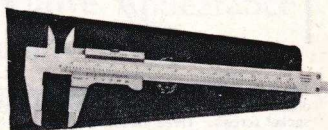
3B650 METRIC NUTDRIVER SET. \$11.45

3B107 HEX DRIVER SET 9.35

3B061 BALL-POINT HEX SET 11.50

*See page 63 for other 99-series tools.

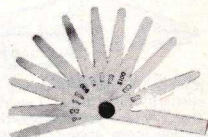
PRECISION SLIDE CALIPER



Finest quality precision instrument. Measures outside, inside, and depth in both millimeters and inches. Gives vernier readings of 1/20 mm. or 1/1000". Reads up to 150 mm. or 6". With thumb adjustment and locking attachment. Stainless steel. Plastic case.

102B430\$24.50

FEELER GAUGES



High-quality gauge constructed in "pen-knife" fashion. Individual blade may be swung out of handle and locked in place for use. 13 blades from .05 to 1.0 mm.

188-13\$2.75

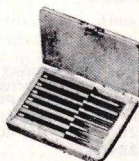
RULE



Stainless 15 cm. rule with graduations in mm. Also has inch readings with 1/4" and 1/2" graduations for comparison.

311MM\$.70

SET OF PIN PUNCHES



BERGEON pin punches made of hardened steel with knurled handles. Set includes 5 drive pin punches from 1 to 5 mm. and a 6 mm. center punch with very fine point. Set is furnished in a polished wood box.

21B270\$20.90

METRIC HEX-KEY SET



Includes seven short-arm hex keys in metric sizes from 2 mm. to 8 mm. In plastic case.

UP-28\$1.50

MIDGET SET

Versatile set containing 8 midget metric hex-type blades from .89 mm. to 5 mm., torque-amplifier handle, and case. Recommended for use in delicate precision work.



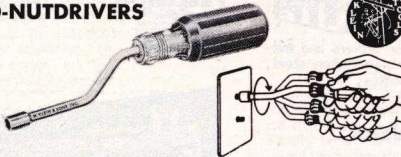
3B190\$6.85

JENSEN PAYS THE SHIPPING CHARGES!



NEW PRODUCTS *too late to classify!*

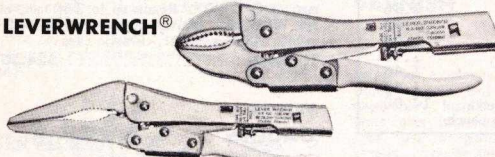
SPEE-D-NUTDRIVERS



The rotating shank of this revolutionary tool acts like a crank (the handle revolves) permitting extremely fast one-hand turning of nuts and socket screws. Three sizes. Cushion grip handles.

37B500 (1/4")	\$4.65
37B502 (5/16")	4.65
37B504 (3/8")	4.65

LEVERWRENCH®



It looks like the time-proven locking pliers shown on page 14, but the similarity ends there. LeverWrench® does not have to be adjusted for size. Adjustment is automatic for locking on any object. Pressure selection screw accommodates fragile materials or up to a ton of pressure. 191B201 clamp makes any LeverWrench® an instant vise. Cushion grip handles.

191B106 (6" MODEL)	\$5.95
191B110 (10" MODEL)	8.35
191B118 (8" LONG-NOSE MODEL)	7.25
191B201 (CLAMP)	4.95



FASTBACK DRILL



The original compact drill. Fits nicely in palm of hand. Professional quality features include solid permanent-magnet stator, ball and bronze bearings, 1250 RPM speed, three-jaw 1/2"-capacity geared chuck, and overall length less than 6 1/2". Weight is only 27 ounces. For 120 volts 60 Hz. AC. Three-wire cord is seven feet long.

13B406	\$56.50
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MITYVAC®

An exciting new product. Hand-operated vacuum pump complete with gauge produces up to 25" of mercury. Works with gases or liquids at rate of one cubic inch per stroke. Use to check and adjust vacuum-operated devices, bleed fluid lines, start a siphon, test instruments, retrieve articles, vacuum-pack, pump liquids and gases. Comes with gauge, length of tubing, four adapters, and Mason jar lids.



192B004	\$18.95
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HANDYBOY TOOL



DIAMOND

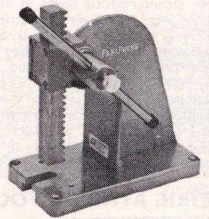
Originally designed for U.S. ski troops. This unique three-purpose tool includes 6 1/2" utility pliers, adjustable 1/2" wrench, and heavy-duty screwdriver. Alloy steel—heavily chrome plated. Leather holster available as an option.

66B200 TOOL	\$5.95
66B223 HOLSTER	2.45

PANAPRESS

Although it stands only 7" high, PanaPress exerts a pressure up to a quarter-ton. Use it to press bearings and sleeves, form small parts, punch, rivet, stake, etc. Arbor and table are die cast. Operating mechanism is hardened ground steel. The undrilled ram is reversible—make your own openings for fixtures.

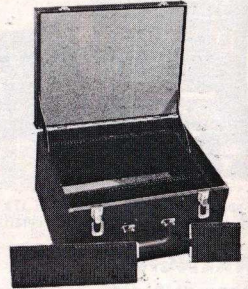
67B203	\$29.95
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CIRCUIT BOARD CASE

This versatile case has four side walls fitted with a slotted molded form. Removable partitions (also slotted) fit into these forms to achieve almost any desired configuration to match your boards. Construction features same as the Jensen deluxe tool cases (pages 65 and 66). Color black. Dimensions 18 x 14 x 11" deep, with a 2" foam padded lid. Five partitions included with each case. Additional partitions may be purchased separately.

54B958 CASE	\$79.00
54B959 18" PARTITION	6.60
54B961 14" PARTITION	5.20
54B963 6" PARTITION	3.00



UNIVERSAL WORKHOLDER

An ingenious, hand-held work holder for the fine mechanic, jeweler, or technician. Holds small parts for engraving, carving, filing, sawing, polishing, etc. The handle is removable, allowing holder to be mounted in a bench vise.

21B705	\$14.95
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"CATALOG" CASE

Used by lawyers and doctors as well as field engineers. Measures 18 x 12 1/2 x 7 1/2". Reinforced molded end panels provide extra strength. Case body is heavy-gauge black laminated scuff-resistant vinyl. Locks and piano hinge are solid brass. Steel core handle. Will hold one each 54B916 and 54B917 tool pallets (not included order from page 65). This beautiful, roomy case must be seen to be appreciated.

199B018	\$39.00
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(In lots of 4-9, \$33.50 ea. 10-49, \$27.50 ea.)



WIRE-WRAPPING TEST KIT

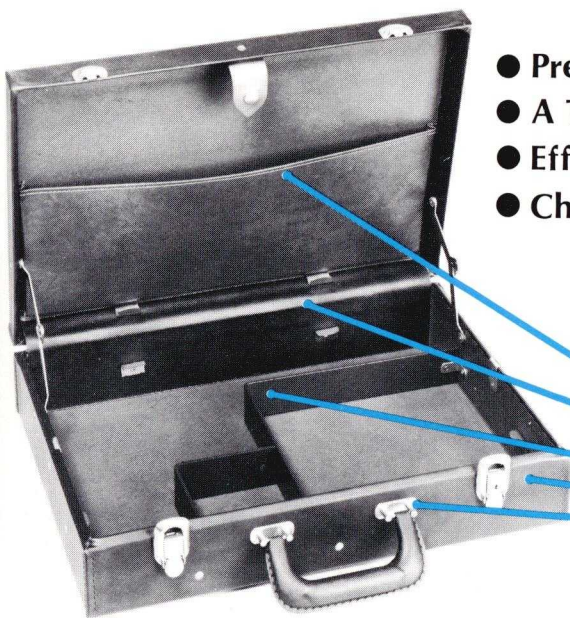


The only effective way to evaluate wire wrapping (as opposed to soldering) is to try it. (See pages 32-33.) This versatile new kit includes the basic tools (pneumatic, electric, and hand powered) plus an assortment of bits, sleeves, test terminals and wires. Also included are unwrapping tools, ground strapping tools, cut and strip tools, air hose, extension cord, terminal holding fixture, and a catalog—all furnished in an executive attache® case.

125B230	\$35.00
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About the Jensen **Deluxe** Case



- Prestige "Executive" Appearance
- A Tested, Quality Design
- Efficient Organization of Tools
- Choose from Five Styles

Consider these outstanding features:

- Document pocket in cover
- Solid wood frame with mahogany paneling and dovetail corners
- Anodized aluminum partitions
- Scuff-proof Marvelon outer cover
- Solid brass hardware

There are many practical reasons (beyond appearance) for carrying your tools in an attache' case. Placing the tools flat in layers is about the most compact arrangement possible. Also, the individual pouches holding the tools provide a "memory" for each item. At cleanup time, every tool finds its way back into the correct position.

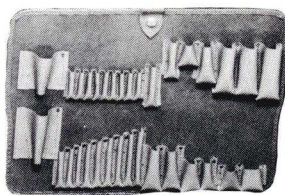
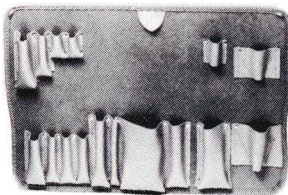
Years of research and field testing have made these Jensen cases the ultimate in durability and professional appearance. Tens of thousands are in use today by field engineers stationed throughout the world. Quality features are built in for long service life. The foundation of each case is a strong, solid wood box. The outer covering is heavy gauge Marvelon. Corners are turned edge, lock-stitch type. Rein-

forcing valances provide a snug fit and keep out dust. An apron covers the area between lid and base. Hardware is solid brass. Anodized aluminum partitions are provided in the bottom of each case to organize test meters, larger tools and parts boxes. A document pocket in the lid of each case (behind the pallet) holds schematics and instruction manuals.

Jensen tool cases have that "executive" look. They give your field service employees front-door access to the equipment they are charged to maintain. If your people are still using old-fashioned tool boxes or a hodge-podge of cartons, containers, or bags — do them a favor by upgrading to a sleek Jensen tool case. They'll thank you for it.

Pallets

Removable tool pallets hold up to 60 items. Pocket material is heavy gauge double-stitched, and riveted for added strength. With a pouch or pocket assigned to each tool, the owner of the case learns to "reach by habit" to a familiar location. Compare this efficient approach with the time lost fumbling in the bottom of a dark tool box for a specific item.



PRICE LIST JENSEN TOOL CASES

54B704	(Two pallets, walnut brown, 18 x 12½ x 4¼" inside dimensions)
54B716	(Two pallets, black, 17¼ x 12 x 5½" inside dimensions)
54B728	(Two pallets, walnut brown, 18 x 13¾ x 7" inside dimensions)
54B720	(Three pallets, walnut brown, 17¼ x 12 x 6½" inside dimensions)
54B717	(One pallet, black, 16¾ x 11¾ x 3¼" inside dimensions)

QUANTITY PRICES		
1-3	4-9	10-49
\$54.00	\$48.00	\$42.00
59.00	53.00	47.00
62.00	56.00	49.00
66.00	59.00	52.00
45.00	40.00	36.00

See pages 65 and 66 for additional information describing these fine Jensen tool cases.

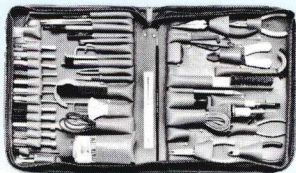
JENSEN PAYS THE SHIPPING CHARGES!

NEW!

FIELD ENGINEER

TOOL KITS and CASES from JENSEN

JTK-64 RELAY SERVICE KIT



A 52-piece kit for servicing and adjusting relays and switchboard components. Furnished in our new 54B954 padded zipper case. See page 31.

JTK-17D FIELD SERVICE KIT



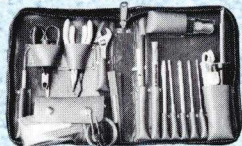
More than 100 tools for servicing all kinds of business machines and electronic equipment. Deep case model has room for extra tools and parts boxes. See pages 56-57.

JTK-77 FIELD SERVICE KIT



A deluxe kit of more than 120 field service tools and parts boxes. Built around the new extra-deep tool case with three pallet surfaces to hold additional tools. See page 60.

JTK-6 "AGENT" TOOL KIT



An extremely compact pocket-size kit of 22 electronic tools in padded zipper case 54B956. Nothing like this ever offered before. See page 60.



JENSEN tool kits and cases have that "executive" look. They give your field service employees front-door access to the equipment they are charged to maintain. If your people are still using old-fashioned tool boxes or a hodge-podge of cartons, containers, or bags - do them a favor by upgrading to a sleek Jensen tool kit. They'll thank you for it.